

FIG. 1

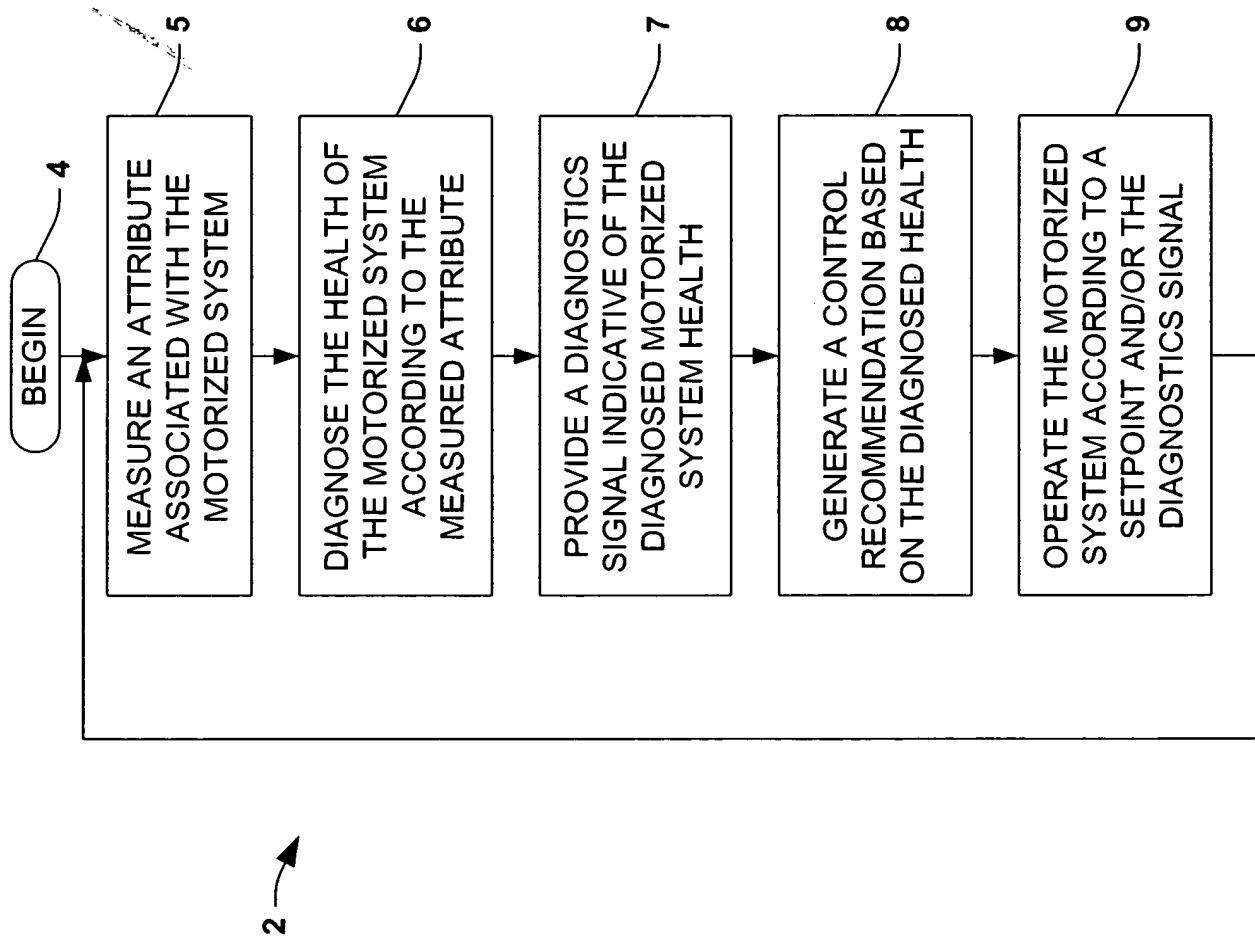


FIG. 2a

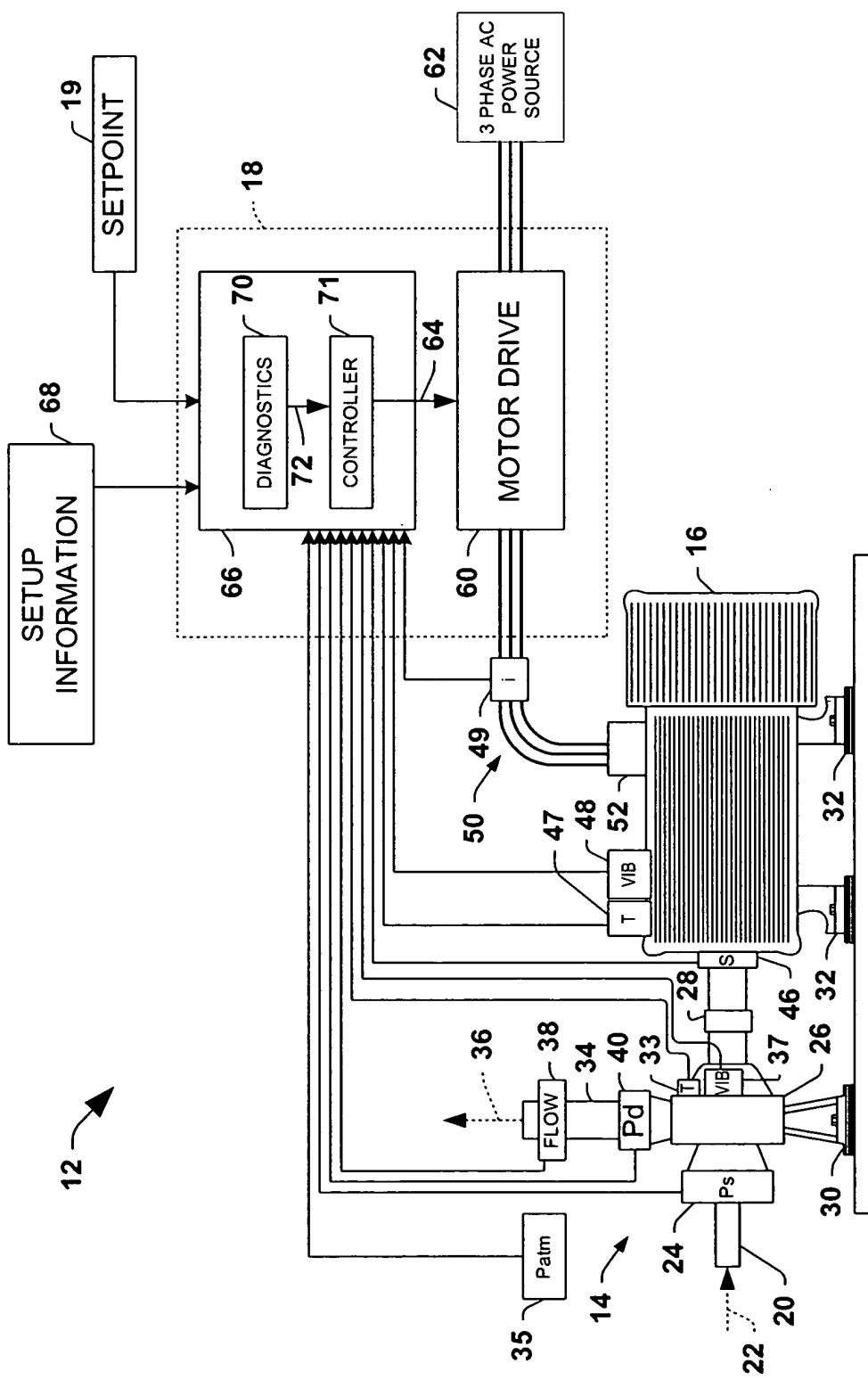


FIG. 2b

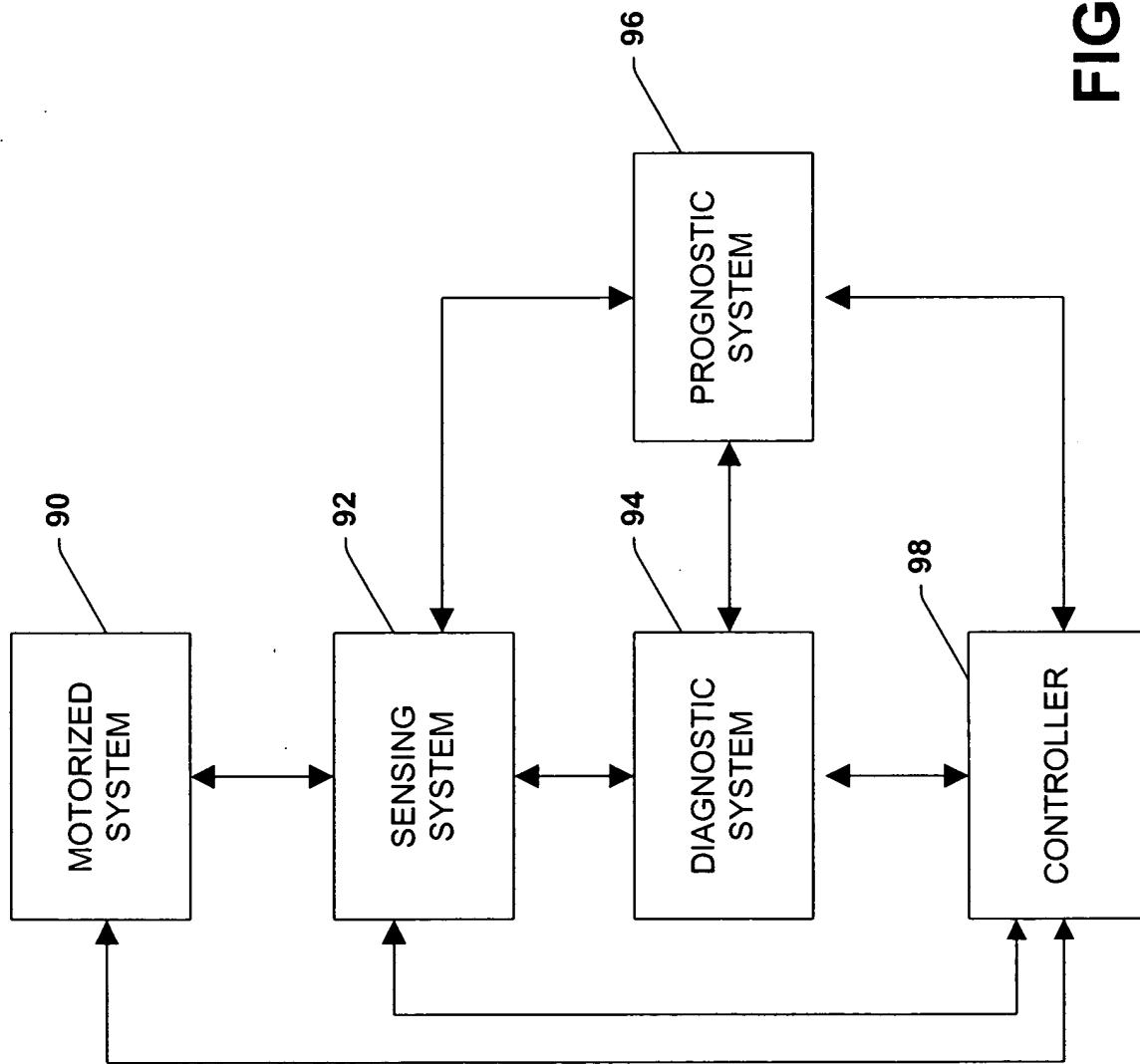


FIG. 3

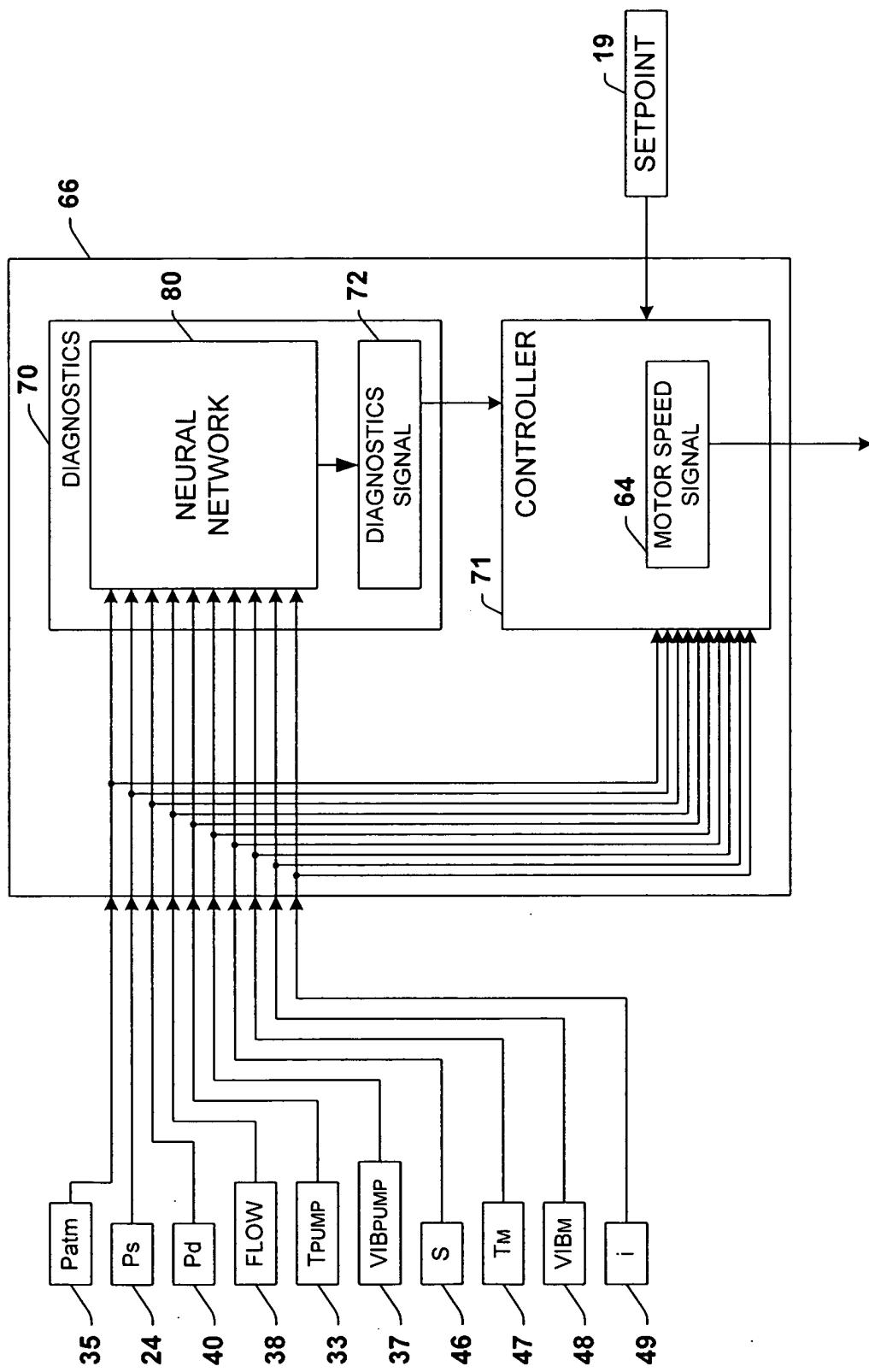


FIG. 4

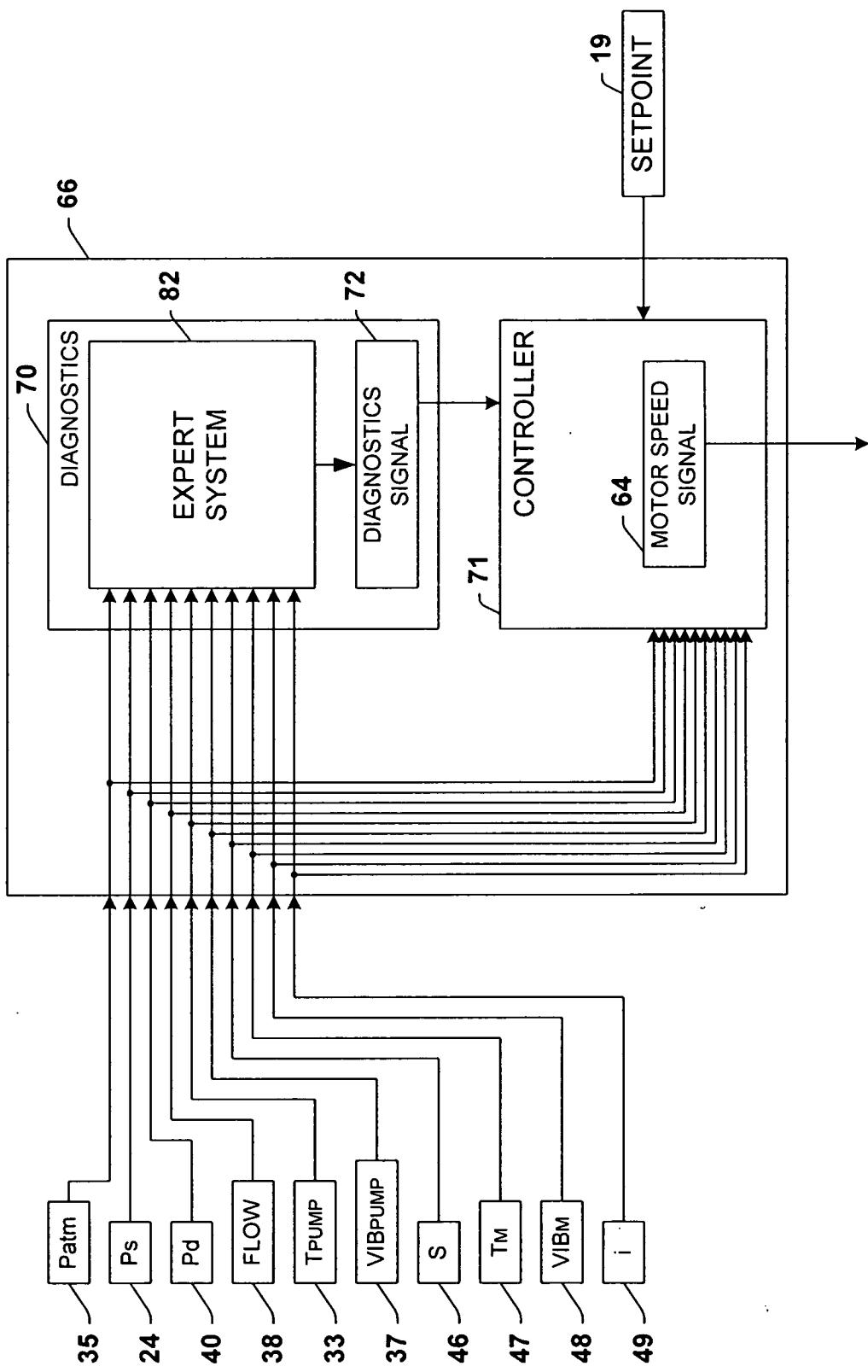


FIG. 5

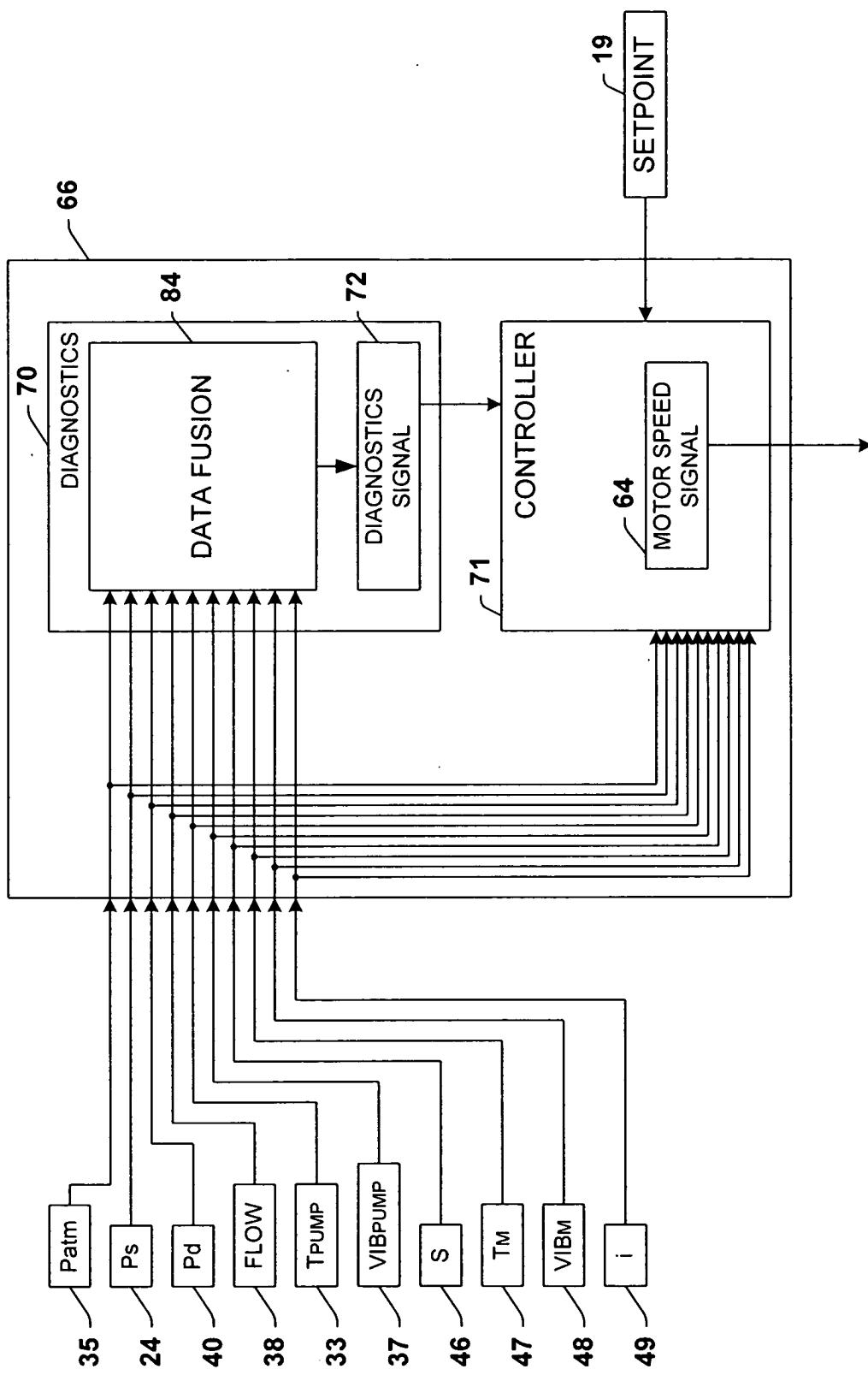
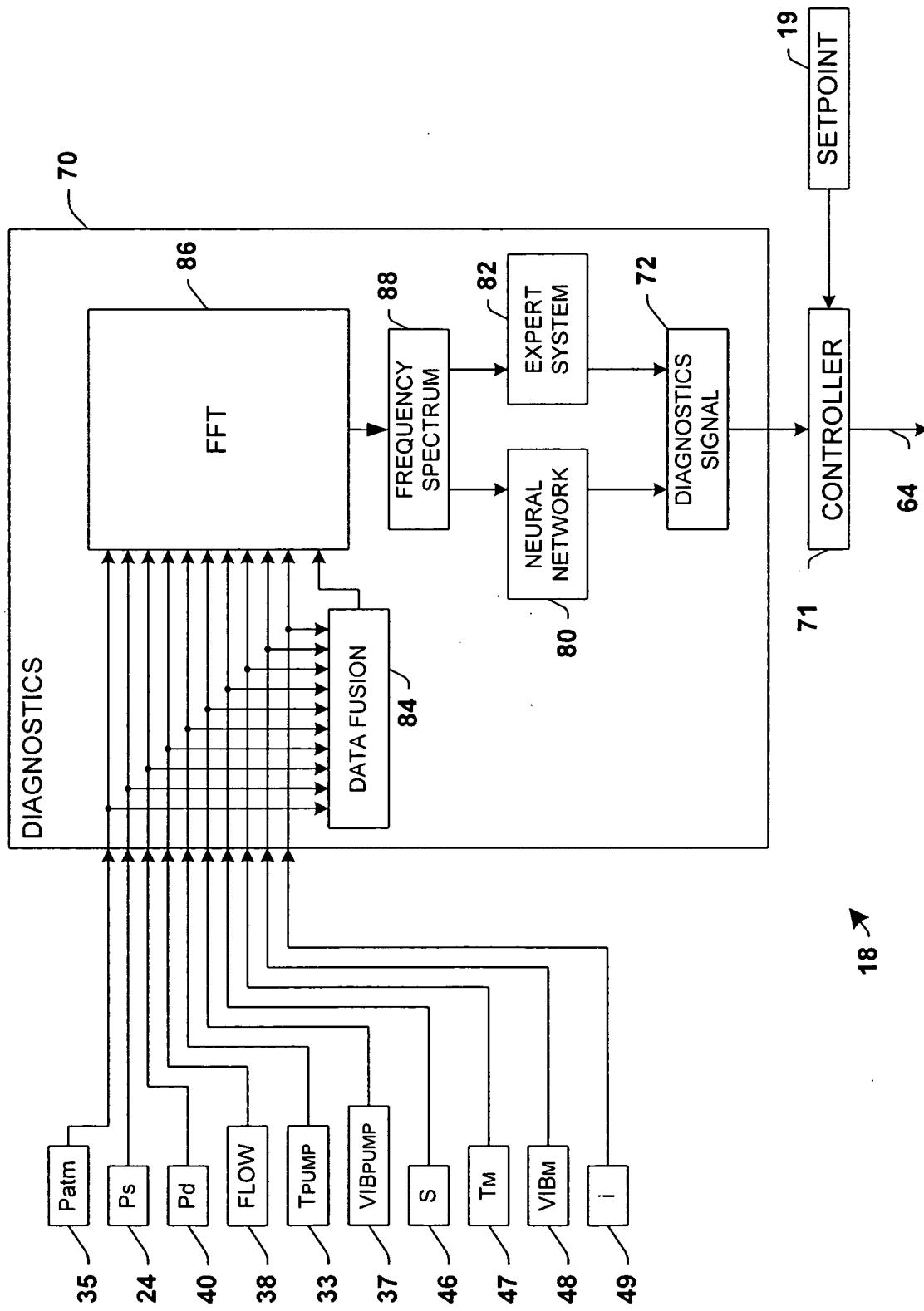


FIG. 6



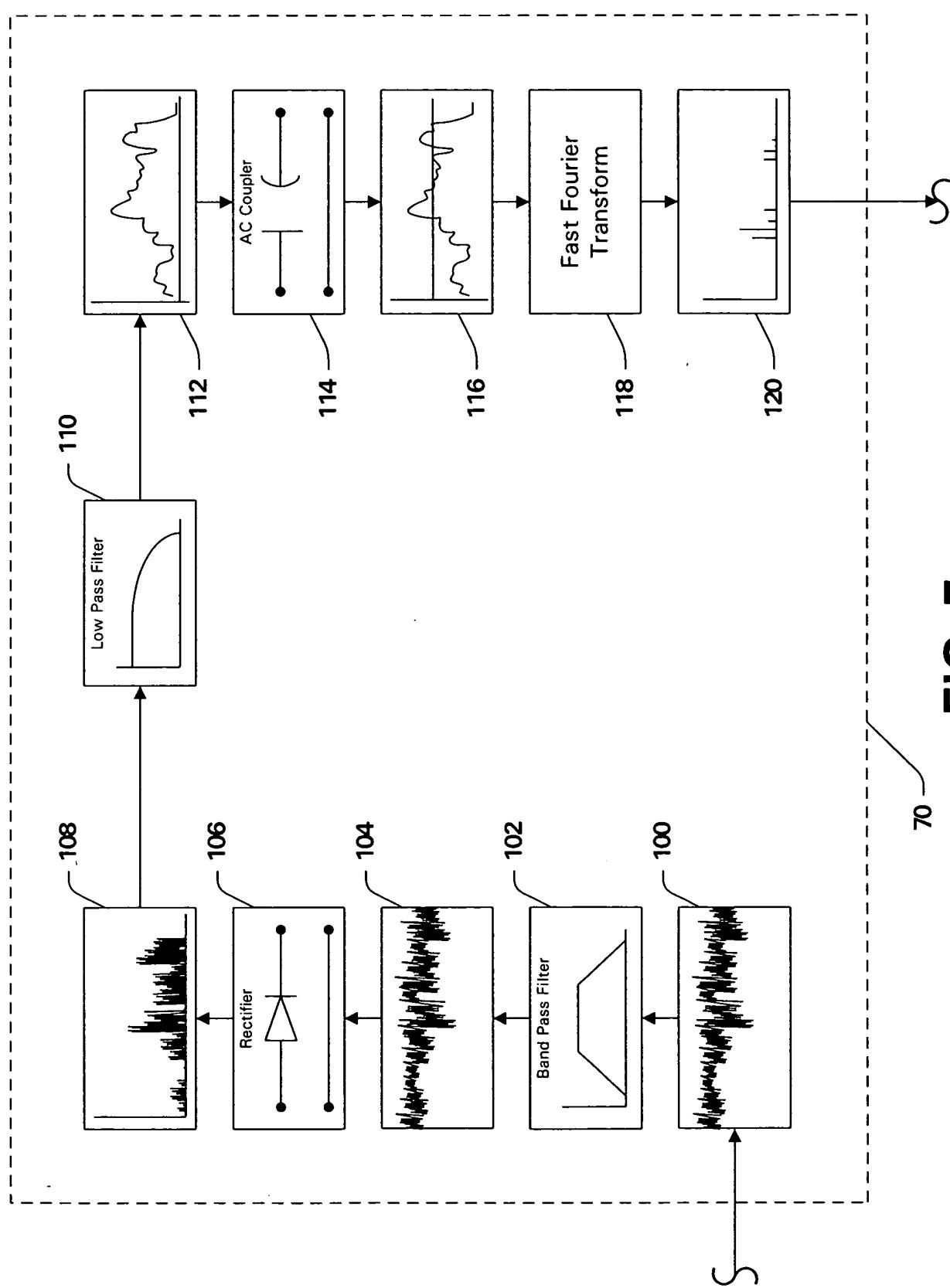


FIG. 7

FIG. 8

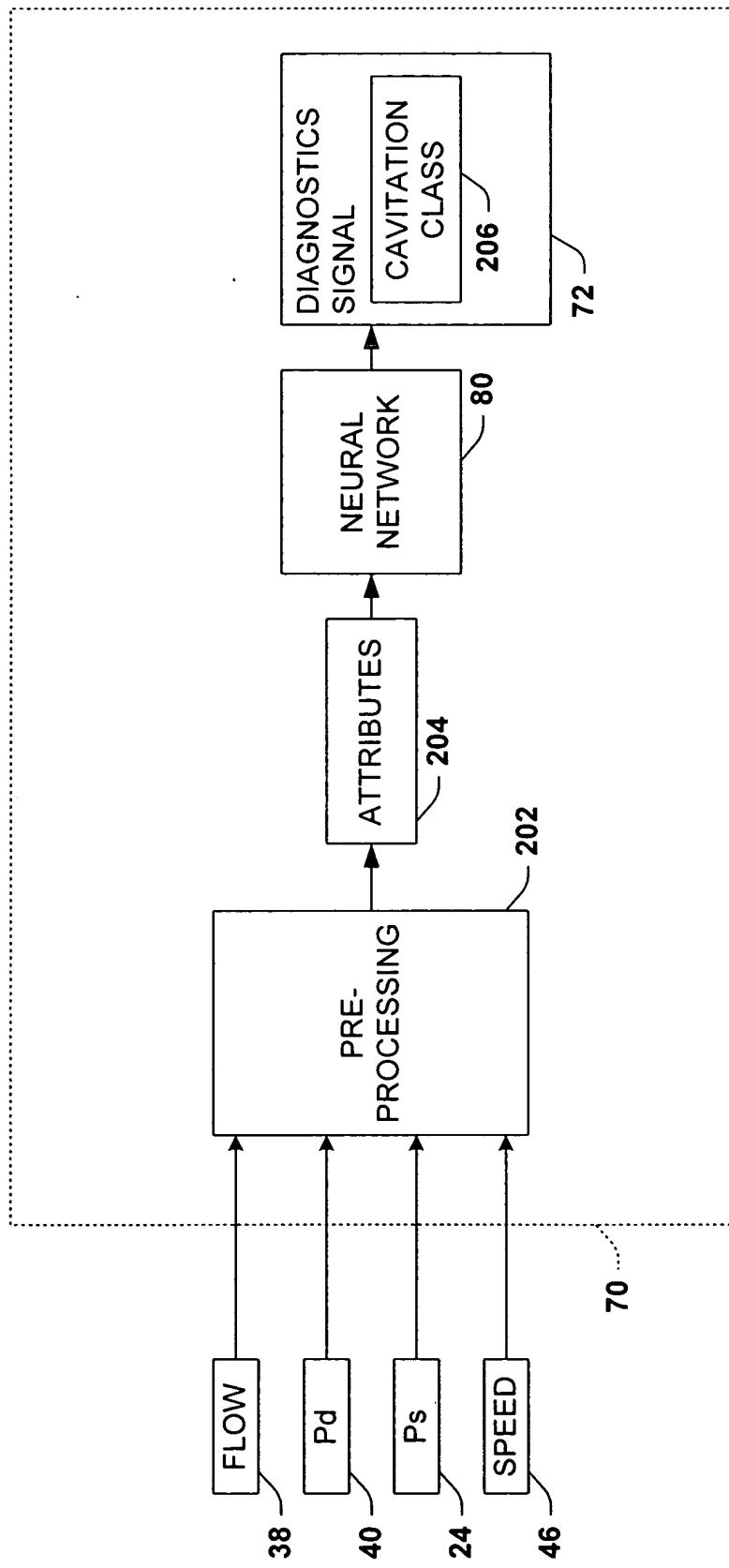


FIG. 9

DIAGNOSTICS SIGNAL	
CLASS 0	normal; no cavitation
CLASS 1	incipient cavitation; mainly balance hole cavitation
CLASS 2	medium cavitation; mainly vane cavitation
CLASS 3	full cavitation; large amount of bubbles on the suction eye but no surging
CLASS 4	surging cavitation; full blown cavitation with surging

206

72

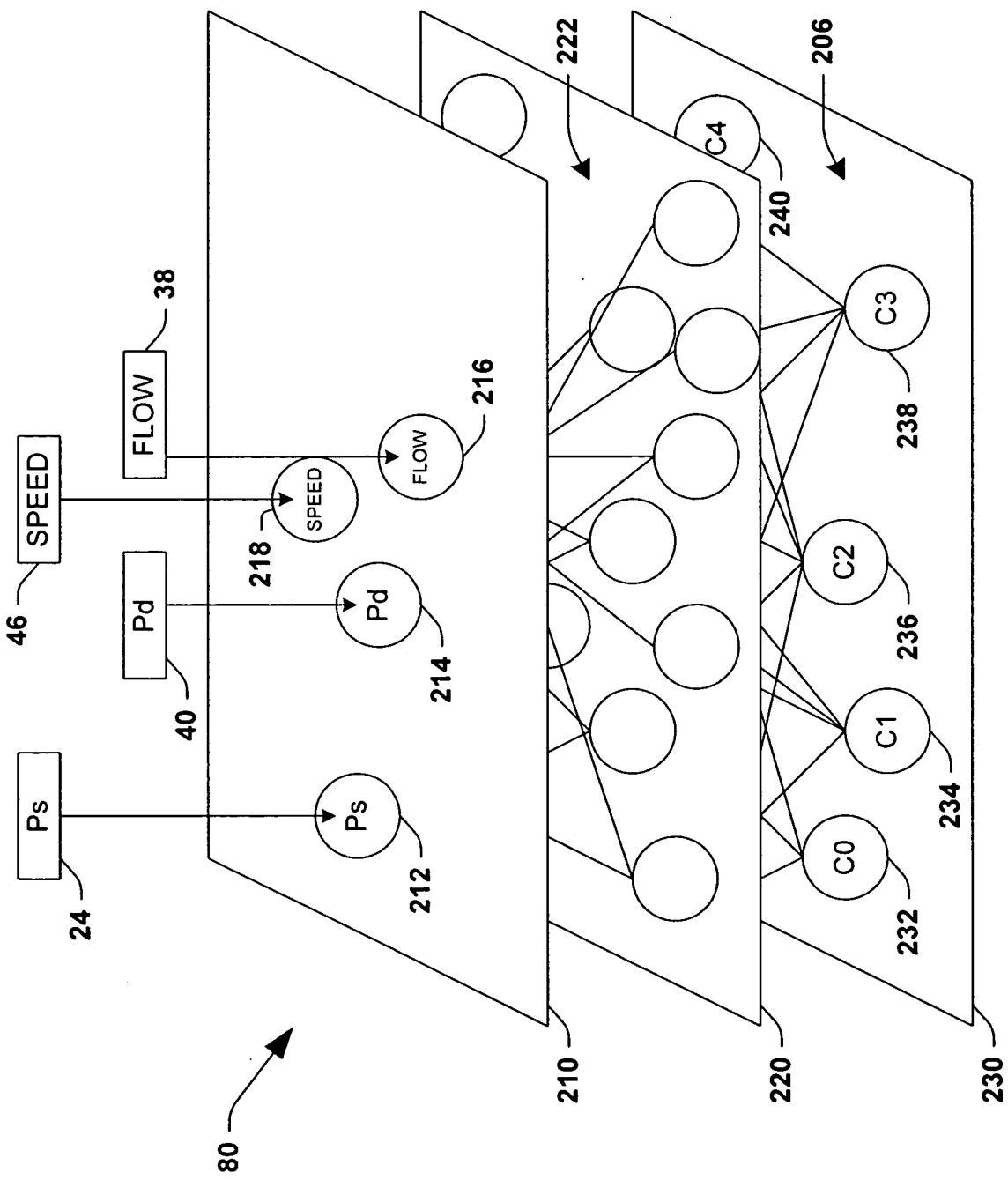


FIG. 10

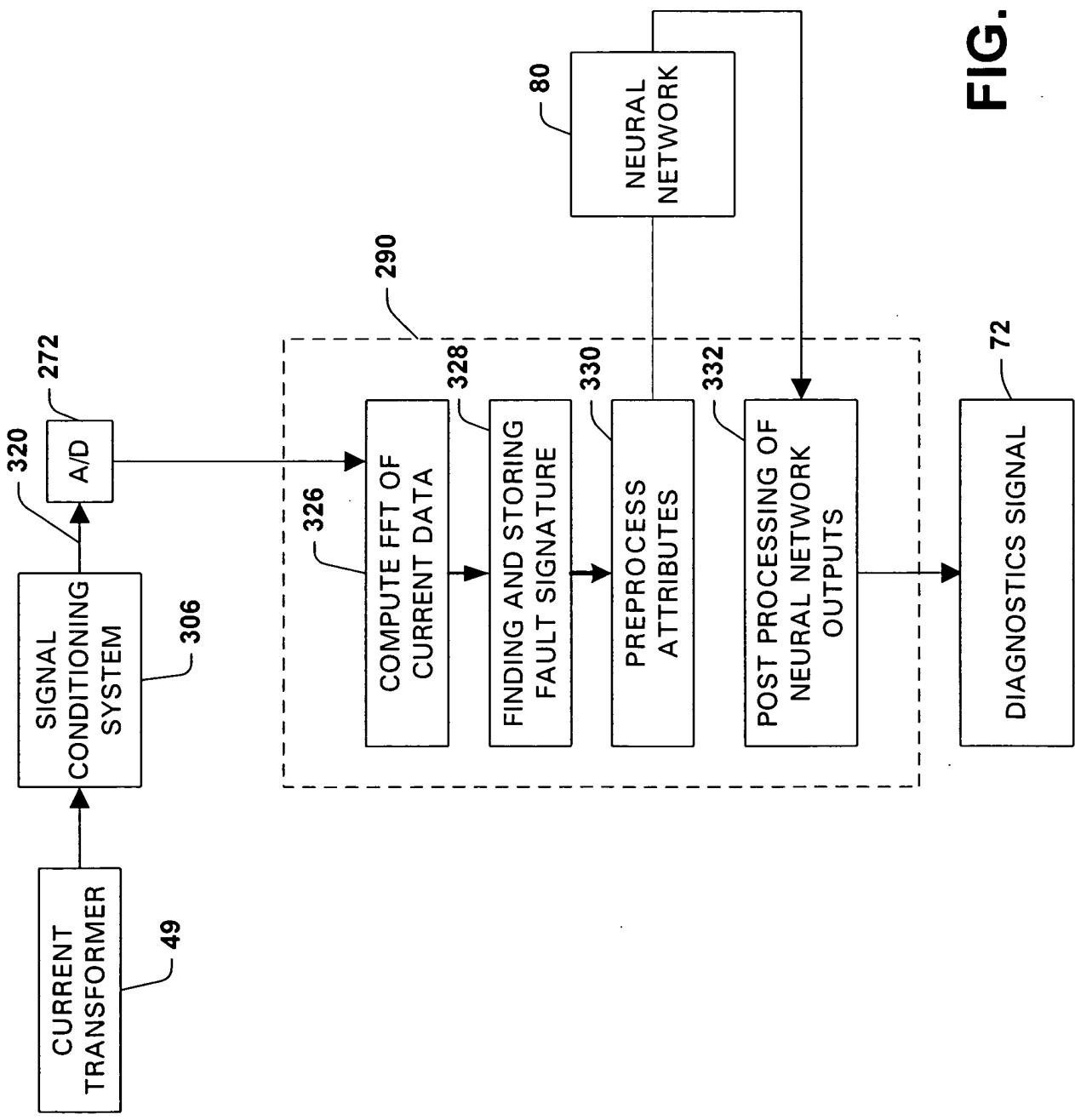


FIG. 11

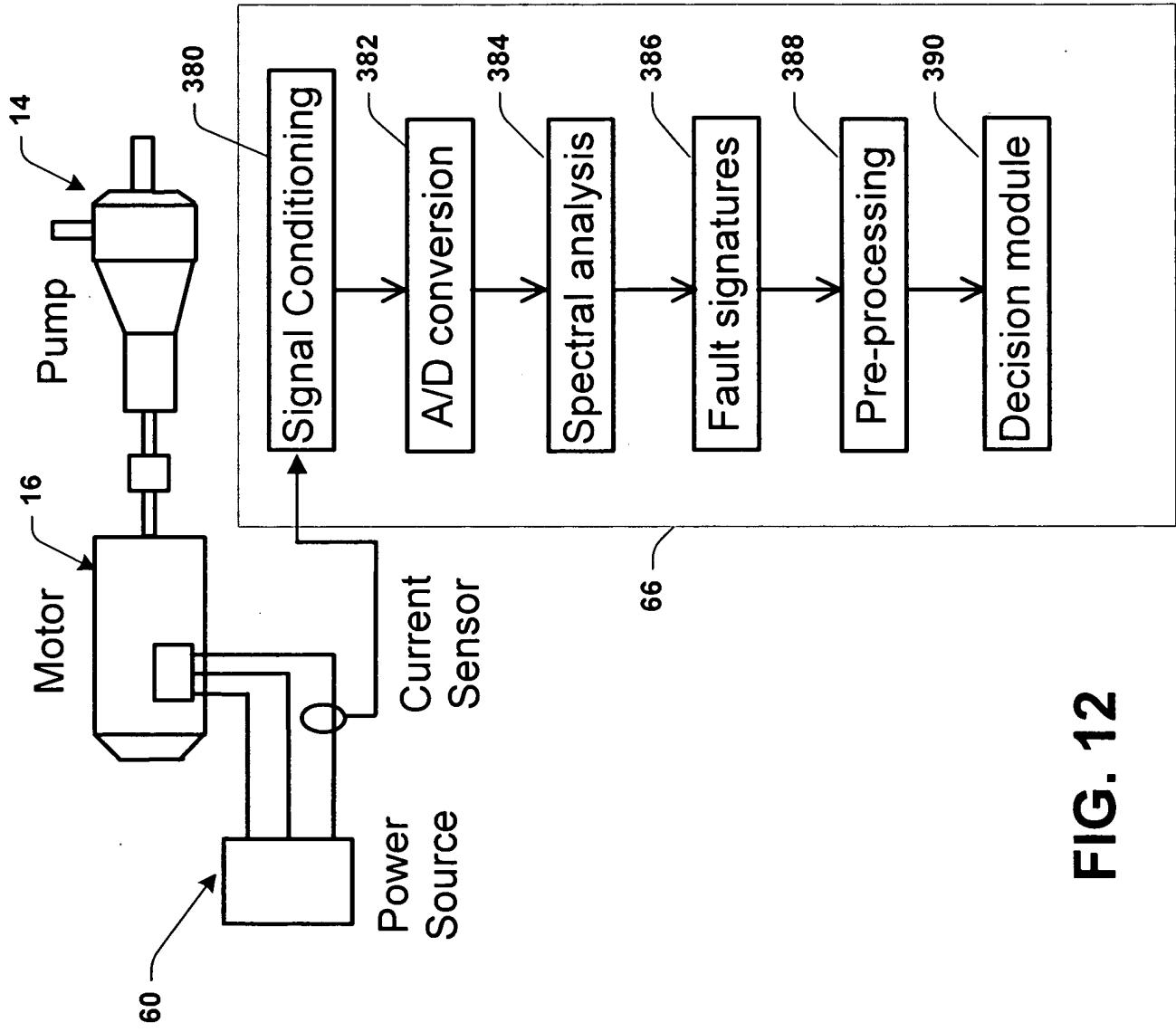


FIG. 12

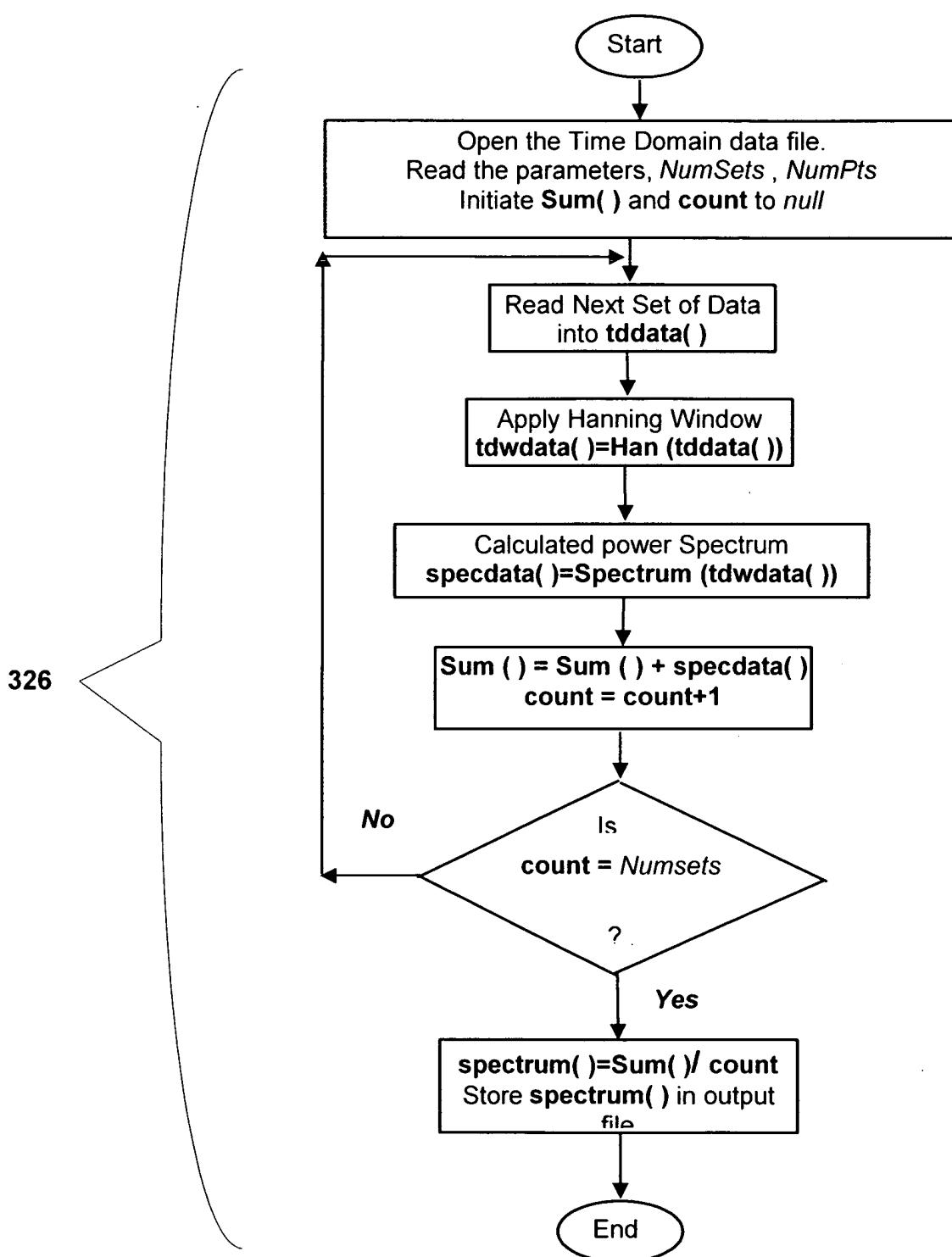


FIG. 13

Fig. 14a

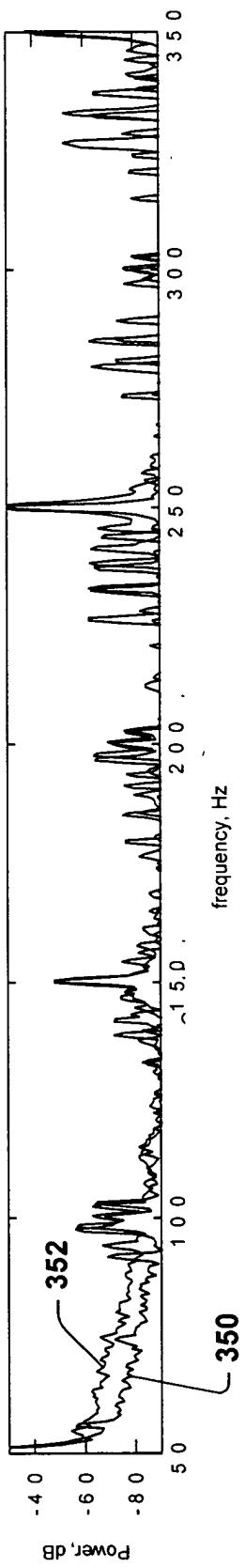
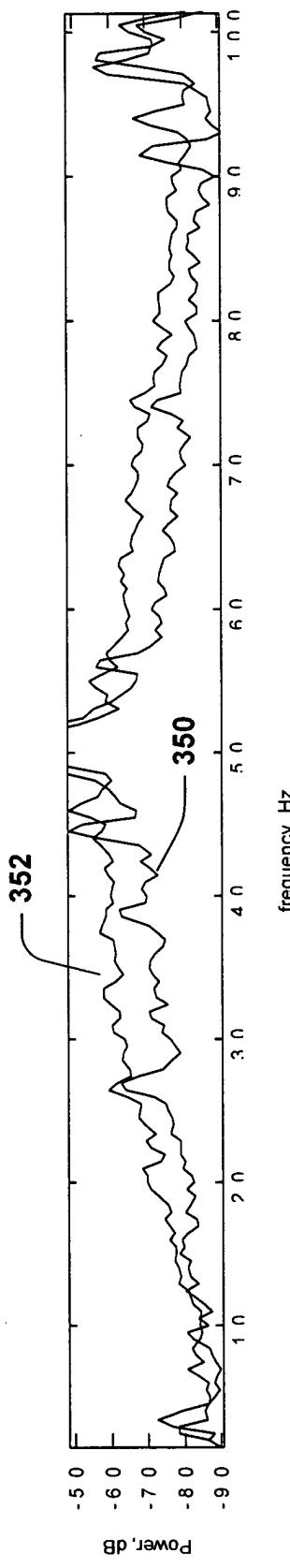


Fig. 14b



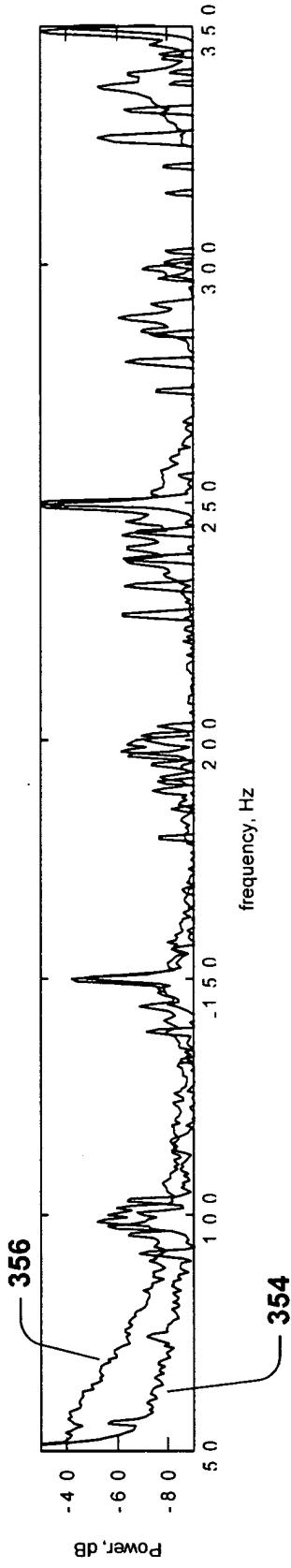


Fig. 14c

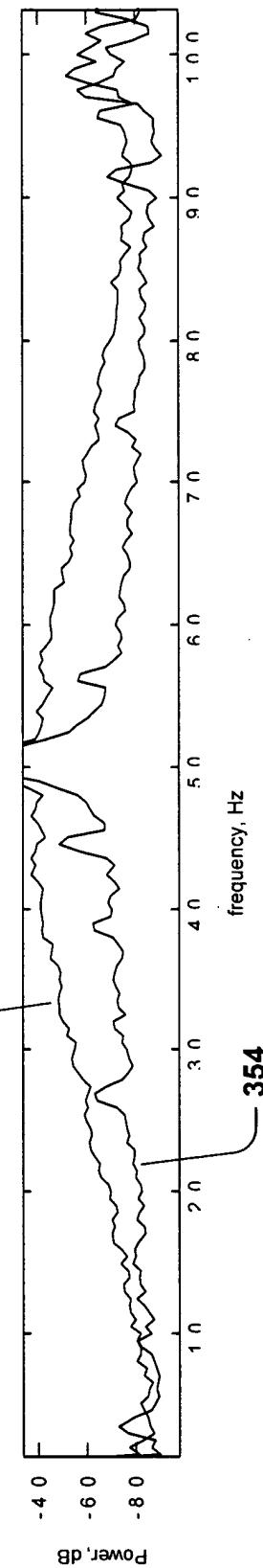


Fig. 14d

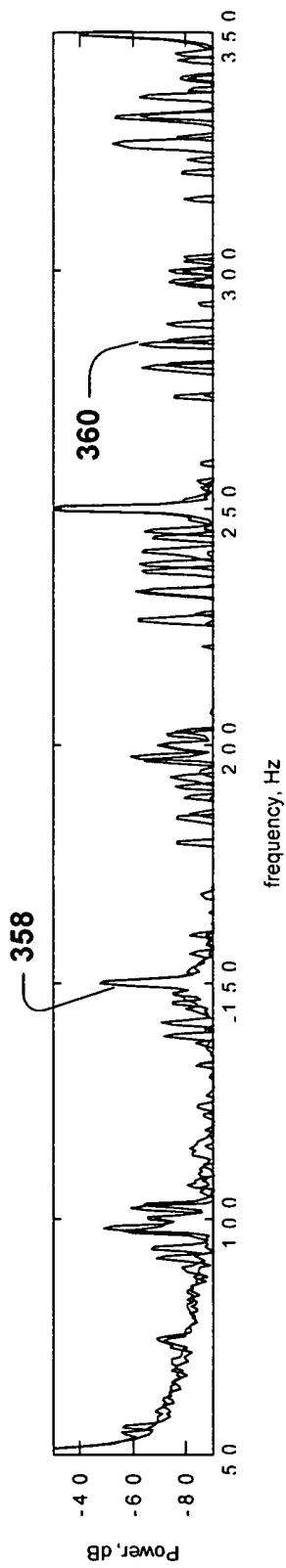


Fig. 14e

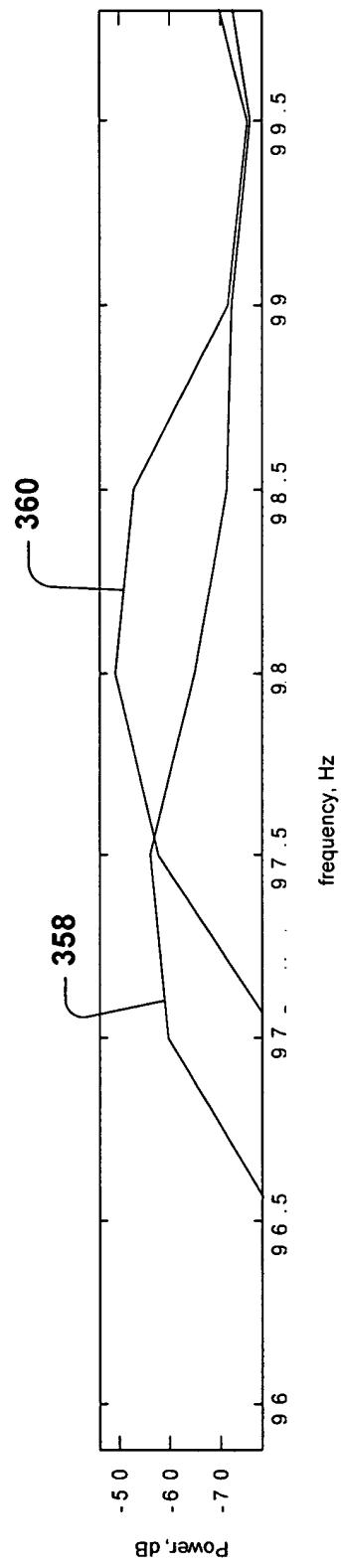


Fig. 14f

FIG. 14g

f_0	f_1	f_2	f_3	f_4	\dots	f_n
A_{3}	A_{34}	A_{67}	A_{78}	A_{84}	•	•
A_{34}	A_{68}	A_{90}	A_{65}	A_{45}	•	•
A_{56}	A_{45}	A_{56}	A_{78}	•	•	A_H
A_{23}	A_{45}	A_7	A_{90}	A_{12}	•	•
A_{67}	A_{36}	A_3	A_{45}	A_{47}	•	•
A_{78}	A_{67}	A_{12}	A_{67}	A_{37}	•	•
A_{234}	A_{27}	A_{478}	A_{24}	A_{127}	•	•
A_{98}	A_{78}	A_{26}	A_{12}	A_{128}	•	•
A_{26}	A_{96}	A_{83}	A_{56}	A_{234}	•	•
A_4	A_{32}	A_{187}	A_{56}	A_{34}	•	•
A_0	A_{16}	A_{73}	A_{76}	A_{33}	•	•
A_{75}	A_{17}	A_{45}	A_{69}	A_{44}	•	•

400

402

404

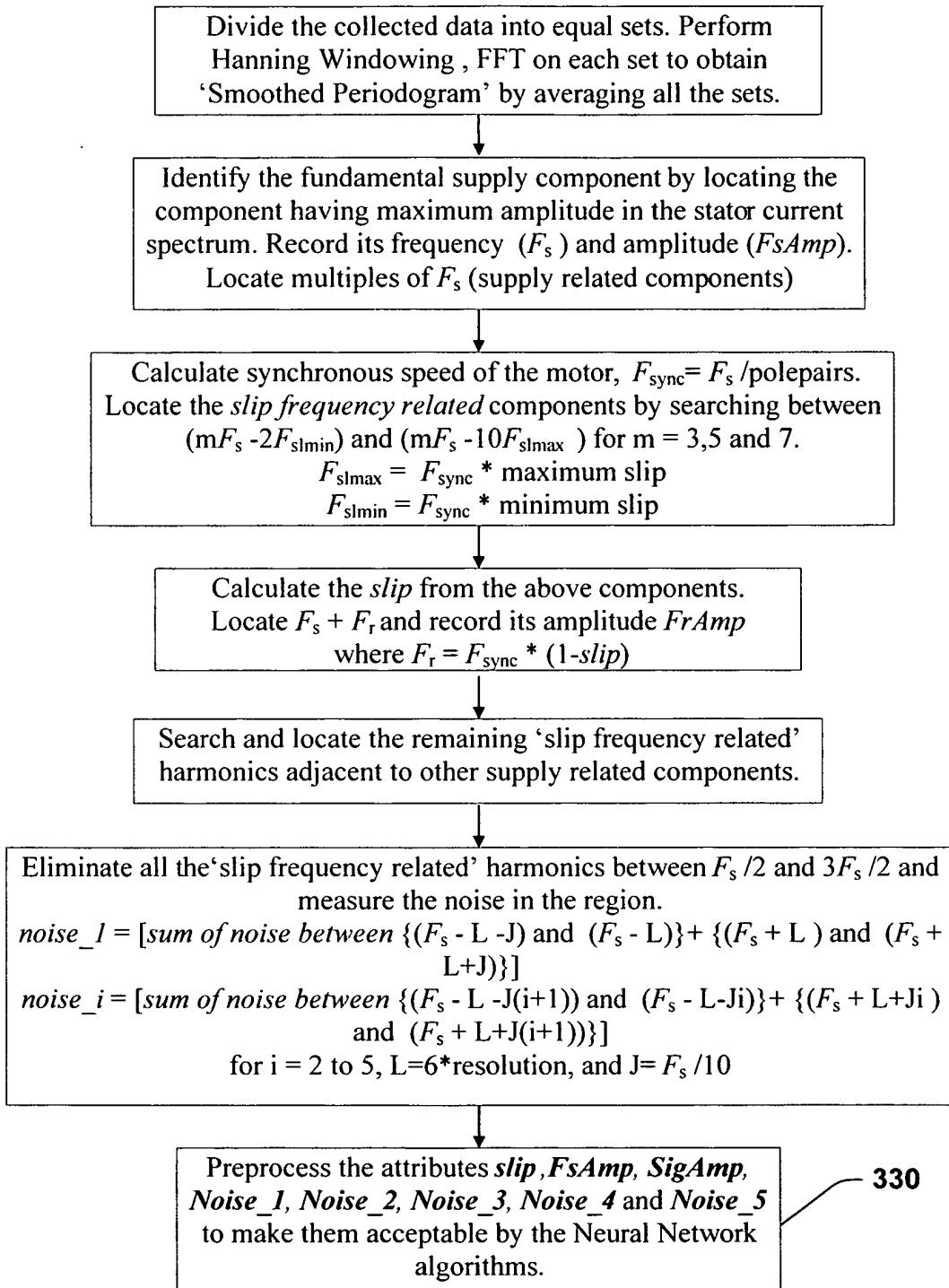


FIG. 15

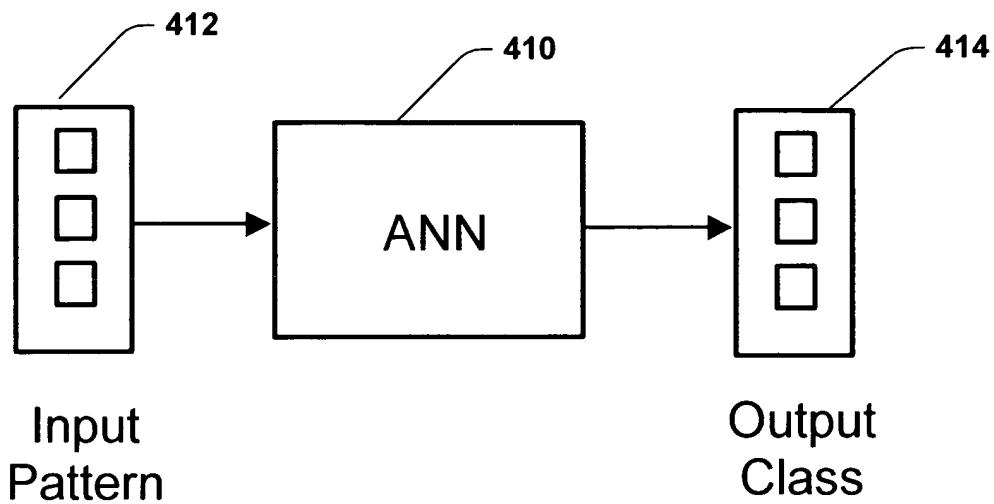


Fig. 16

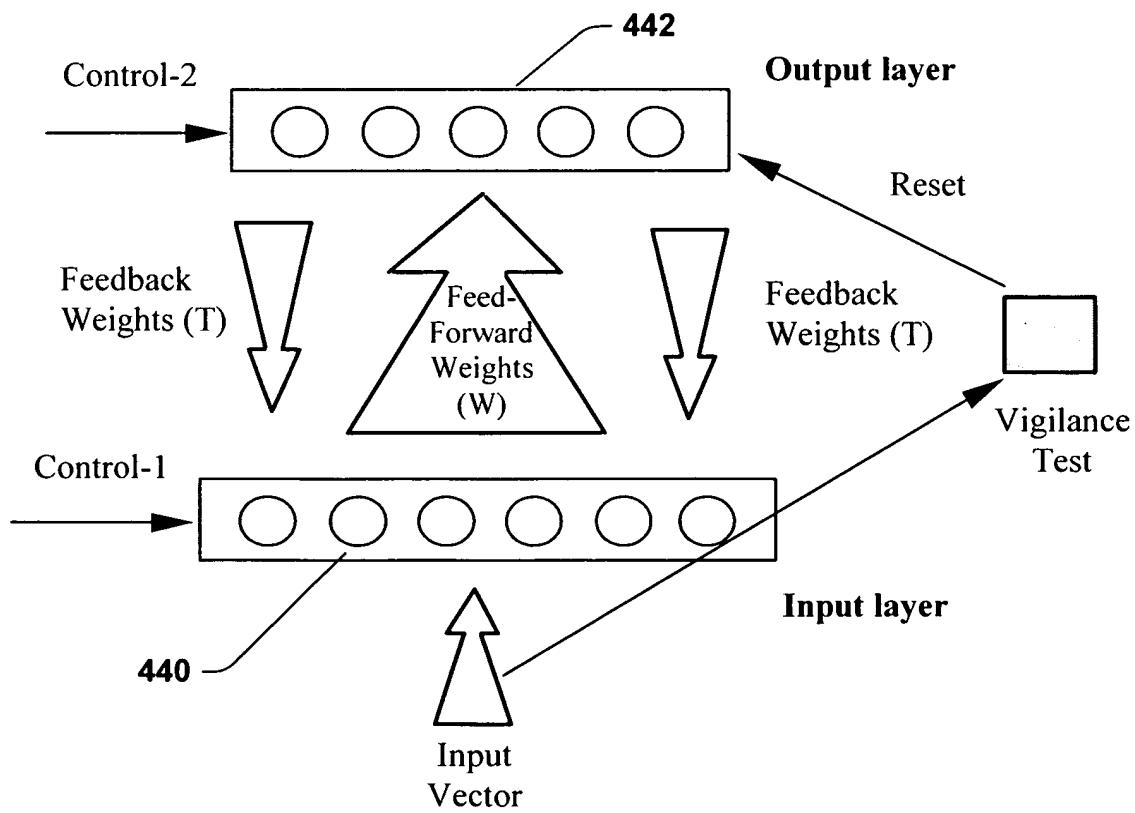
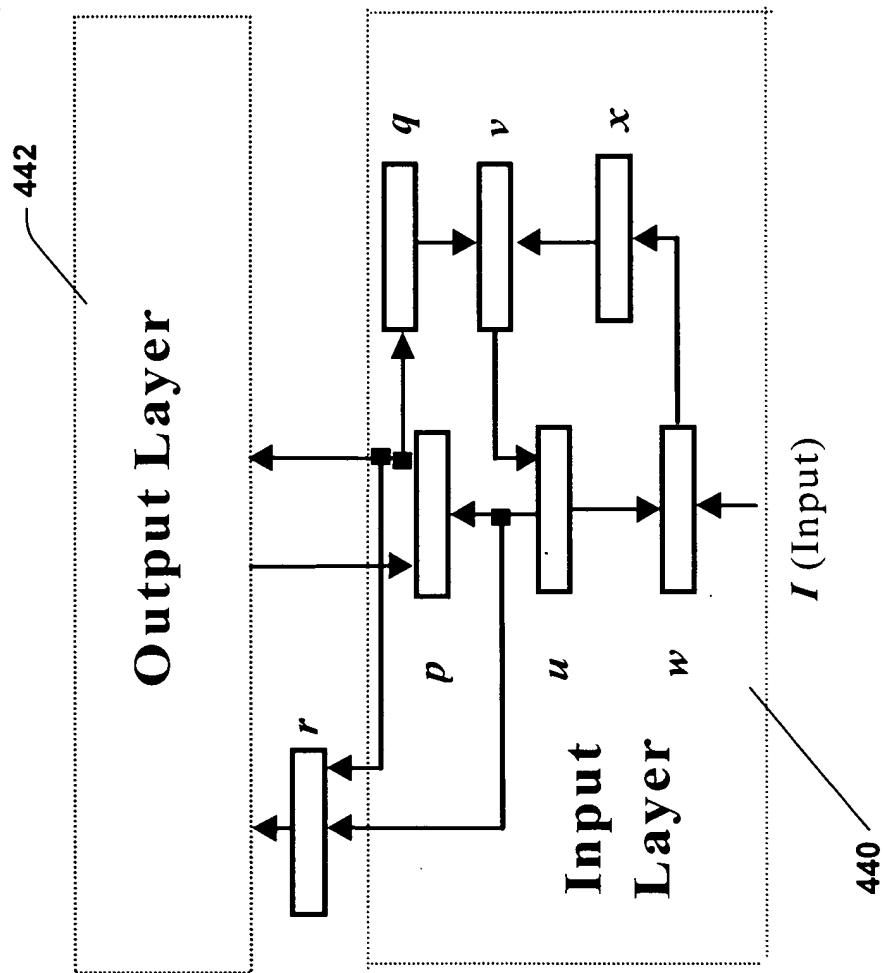


Fig. 17

Fig. 18



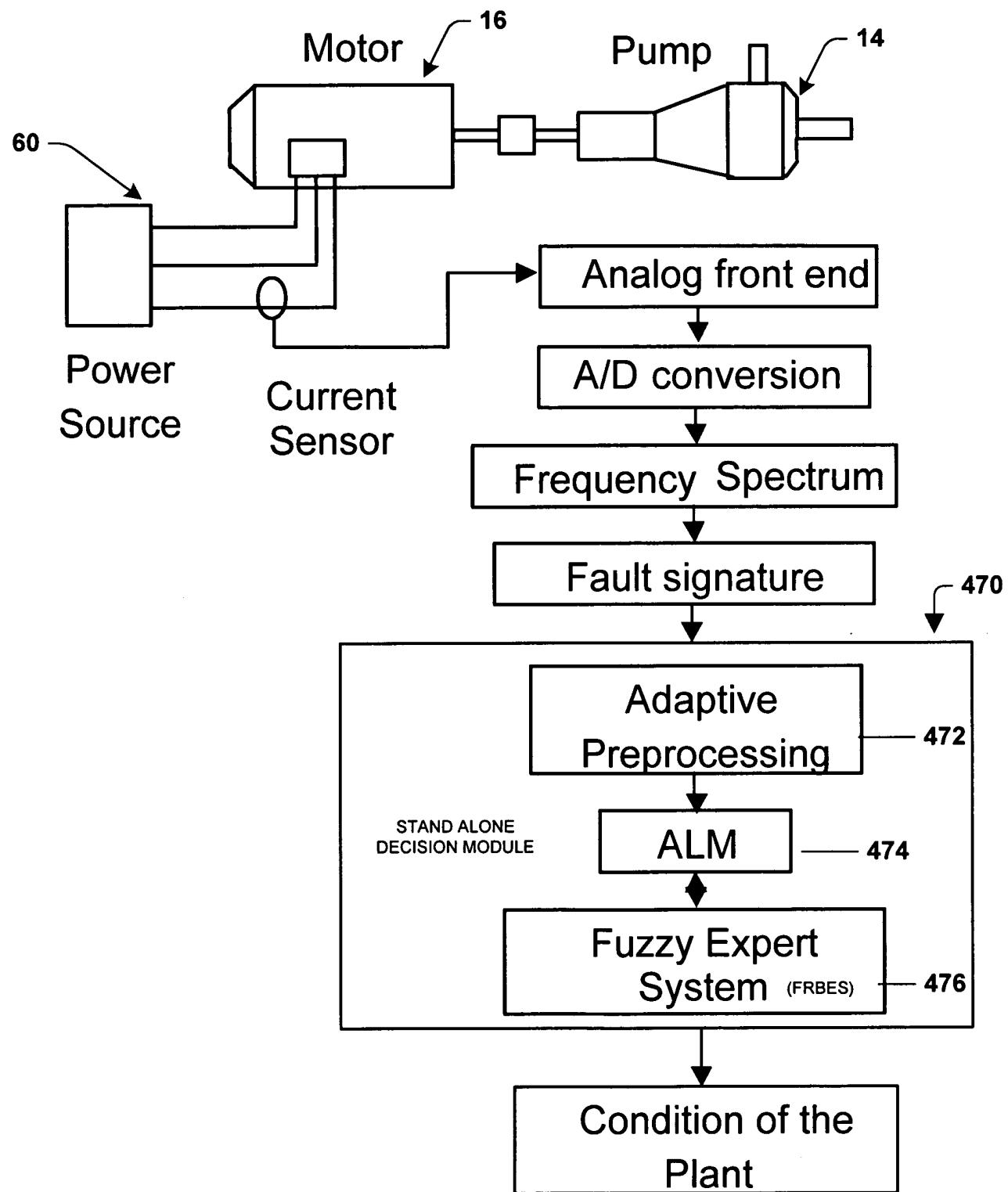


Fig. 19

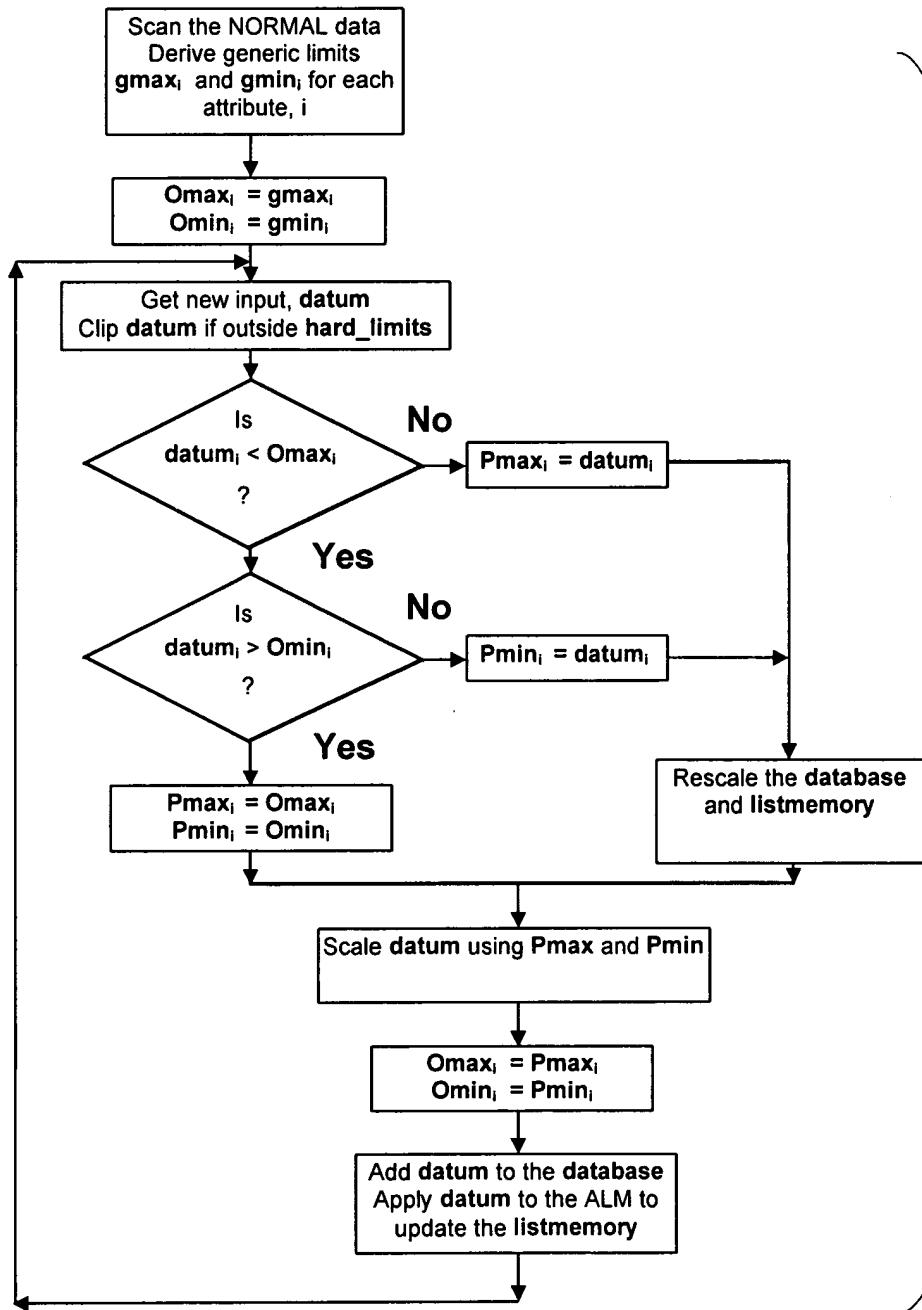


Fig. 20

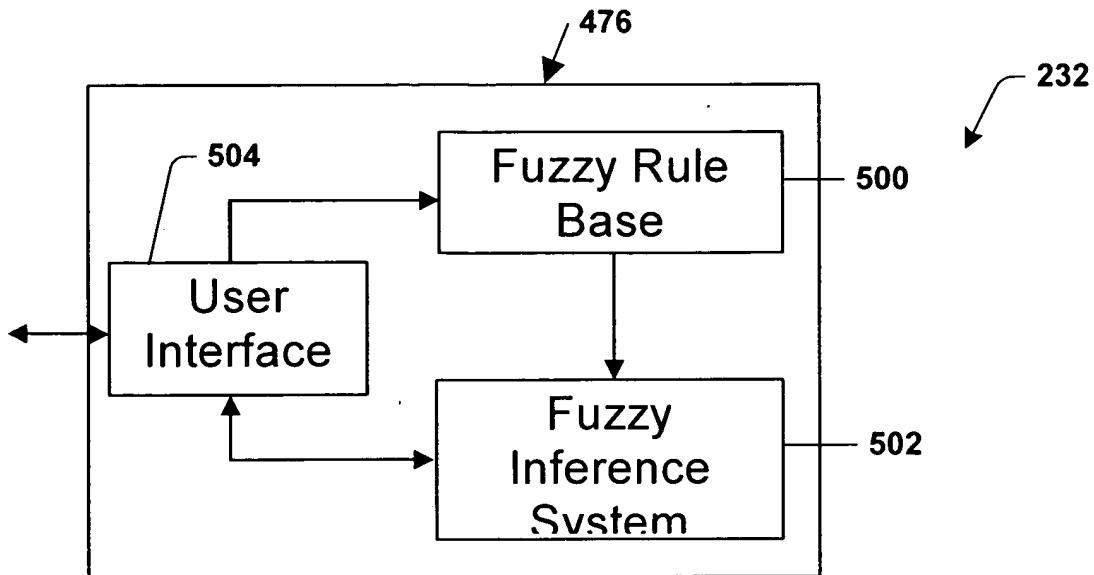


Fig. 21

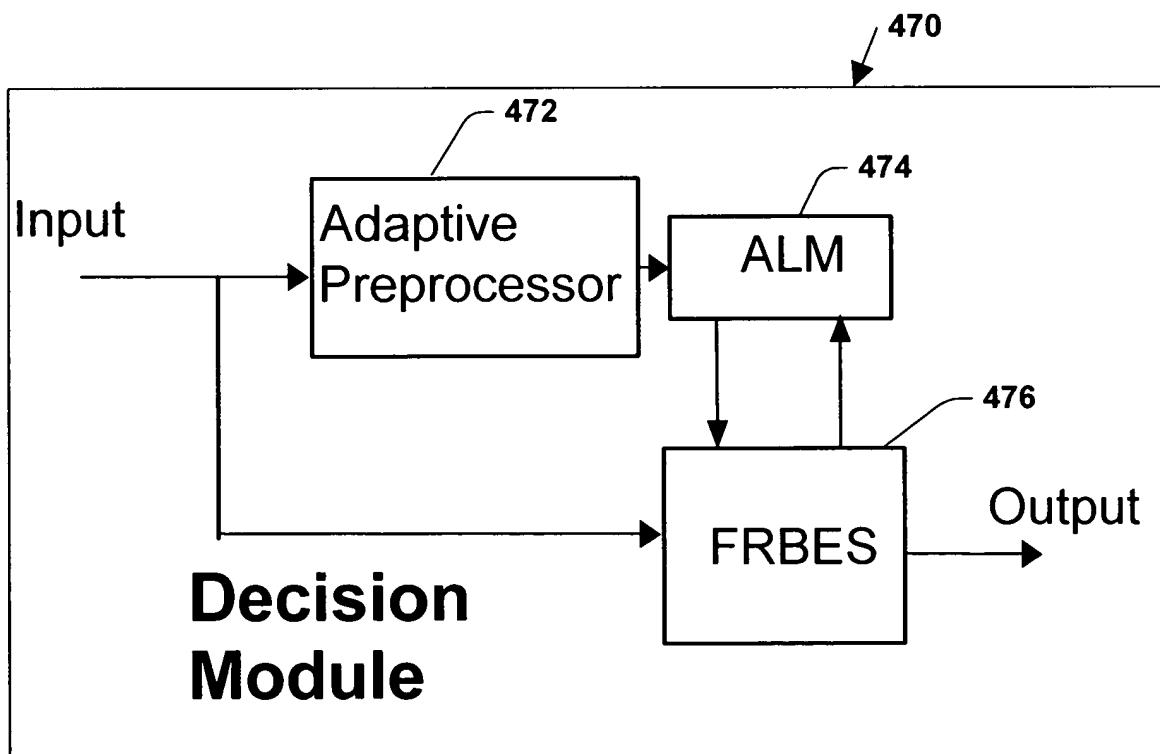


Fig. 22

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IF all the attributes are NORMAL THEN condition is normal
IF slip is SLL0 and noise_2 is H/ THEN condition is low-cav
IF noise_4 and noise_5 are VERH/ THEN condition is sev-cav
  IF noise_4 and noise_5 are H/ THEN condition is sev-cav
    IF FsAmp is SLL0 and noise_5 are SLH/ THEN condition is sev-cav
      IF FsAmp is LO and noise_5 is SLH/ THEN condition is sev-cav
      IF FsAmp is VERL0 and noise_5 is SLH/ THEN condition is sev-cav
      IF FsAmp is SLL0 and noise_4 are H/ THEN condition is sev-cav
        IF FsAmp is LO and noise_4 are H/ THEN condition is sev-cav
        IF FsAmp is LO and noise_4 is VERH/ THEN condition is sev-cav
        IF FsAmp is SLL0 and noise_4 is VERH/ THEN condition is sev-cav
      IF FsAmp is SLL0 and slip is SLL0 and noise_5 is NORMAL THEN condition is low-block
        IF FsAmp is LO and noise_4 is NORMAL and noise_5 is NORMAL THEN condition is sev-block
          IF slip and FsAmp are VERL0 THEN condition is sev-block
            IF FFAmp is H/ THEN condition is impel-fault
            IF framp is VERH/ THEN condition is impel-fault

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Fig. 23

Fig. 24

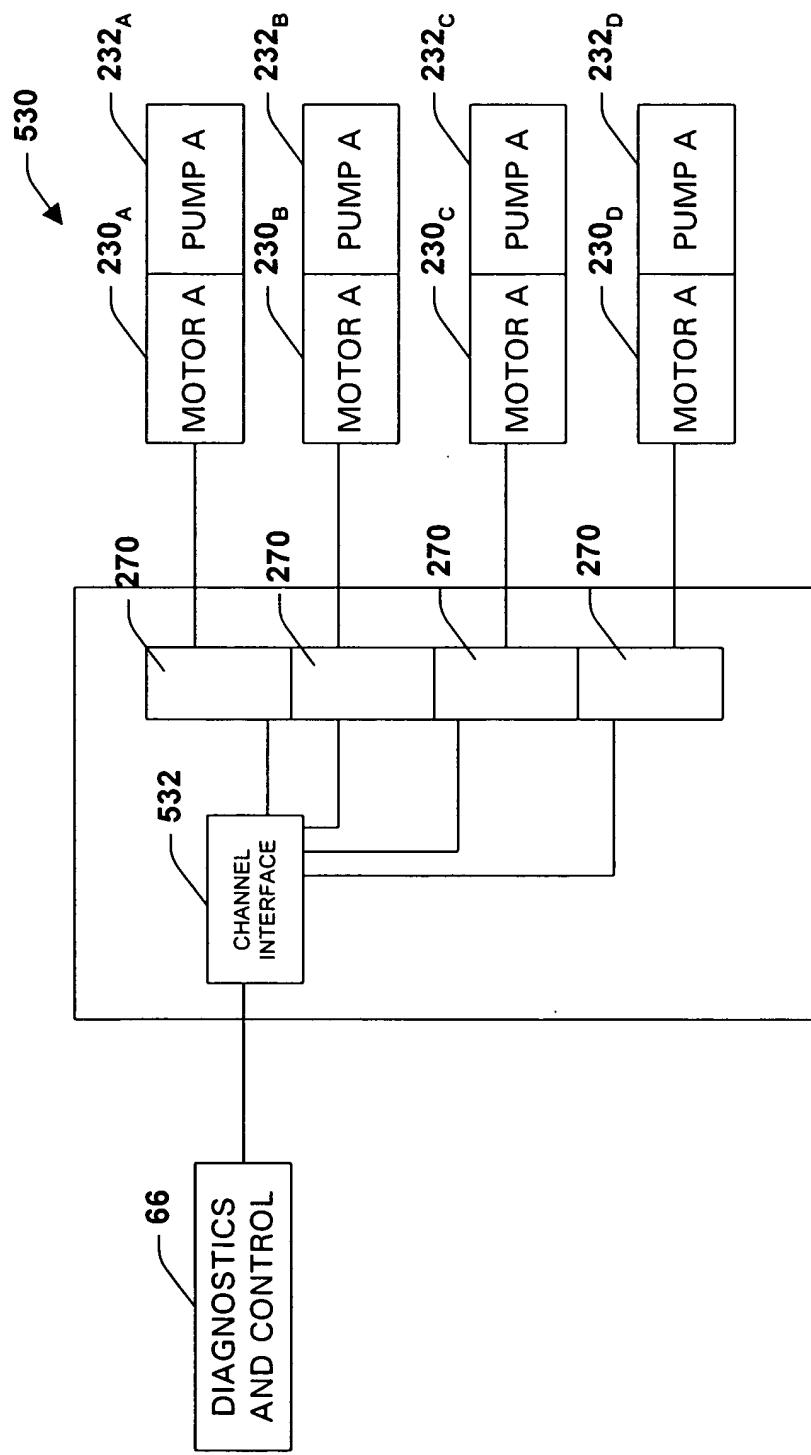


Fig. 25

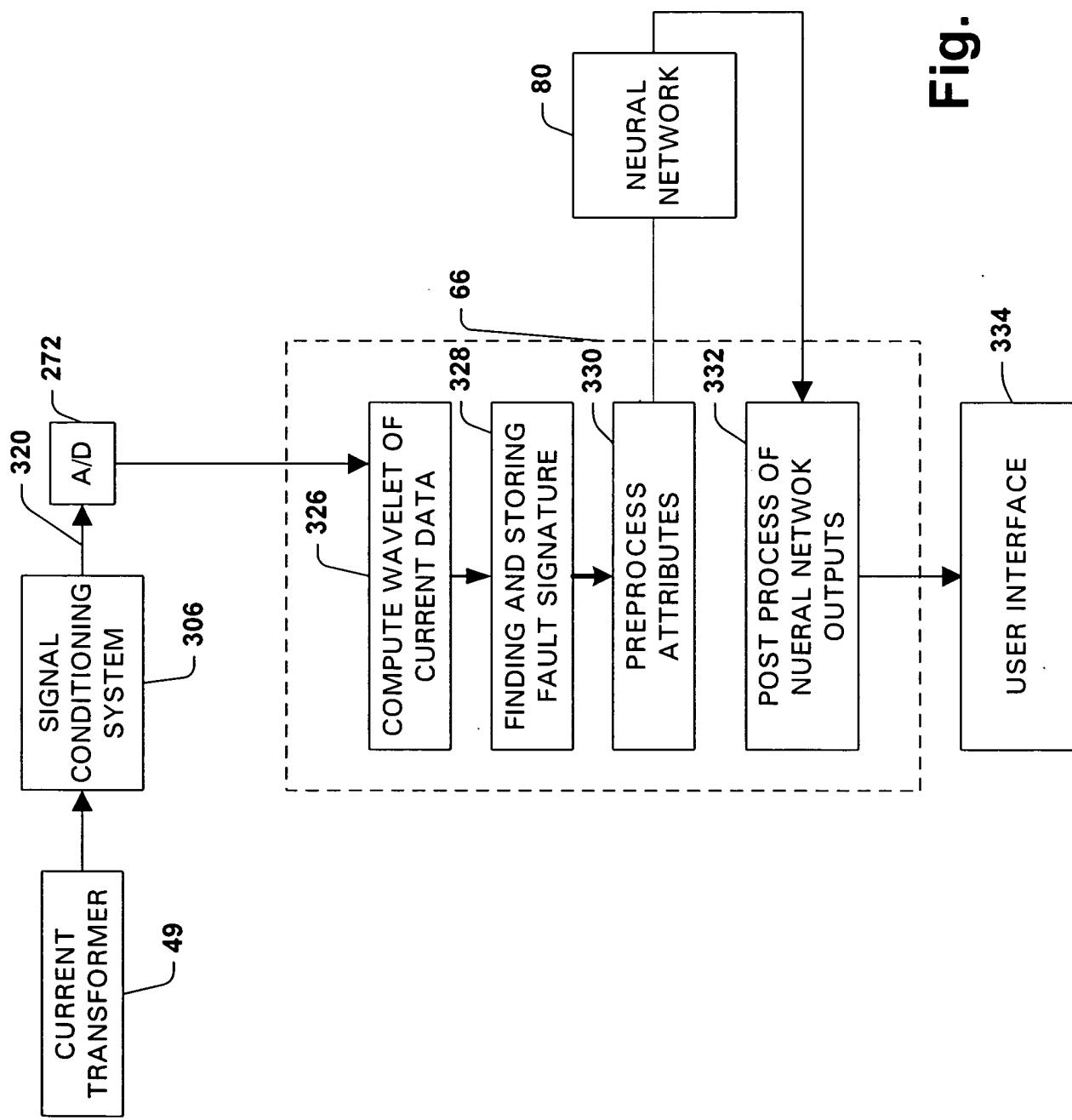


FIG. 26

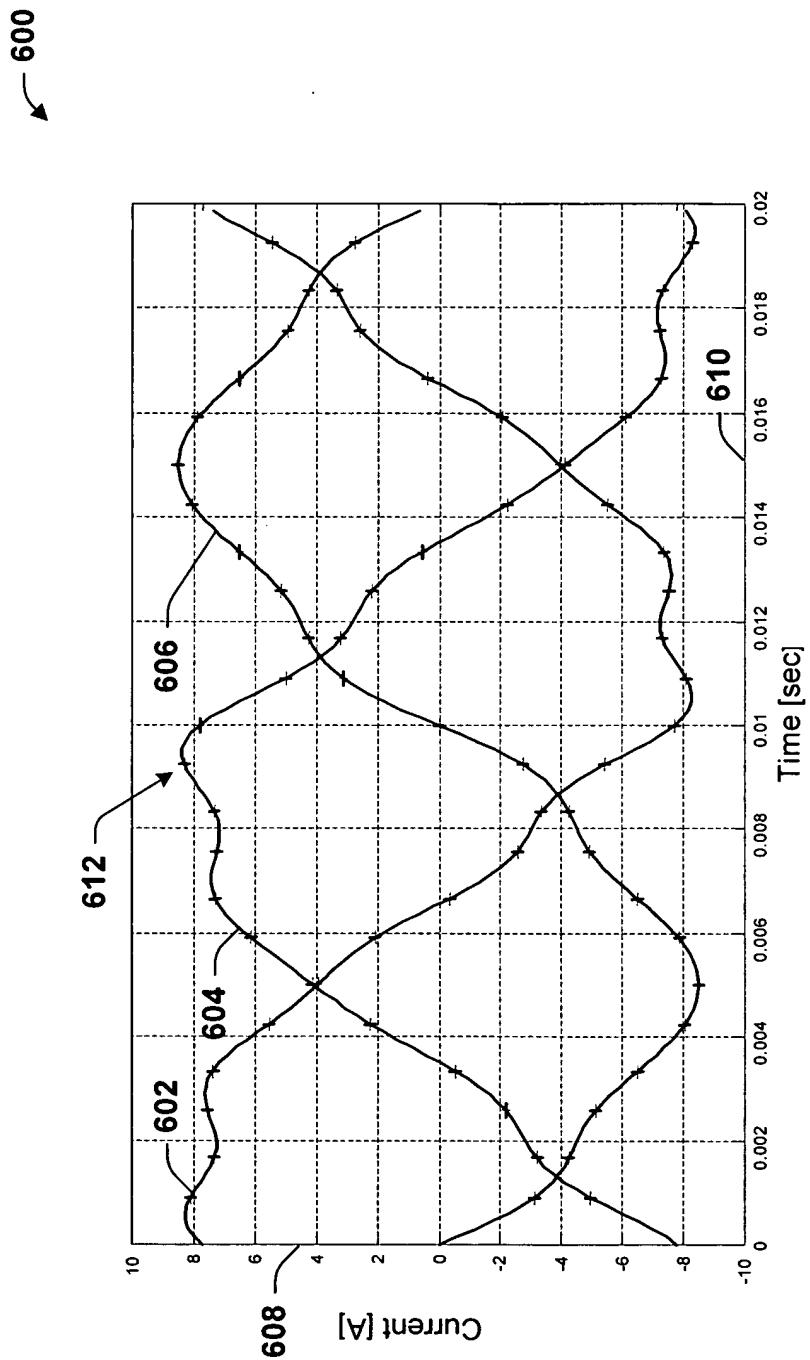
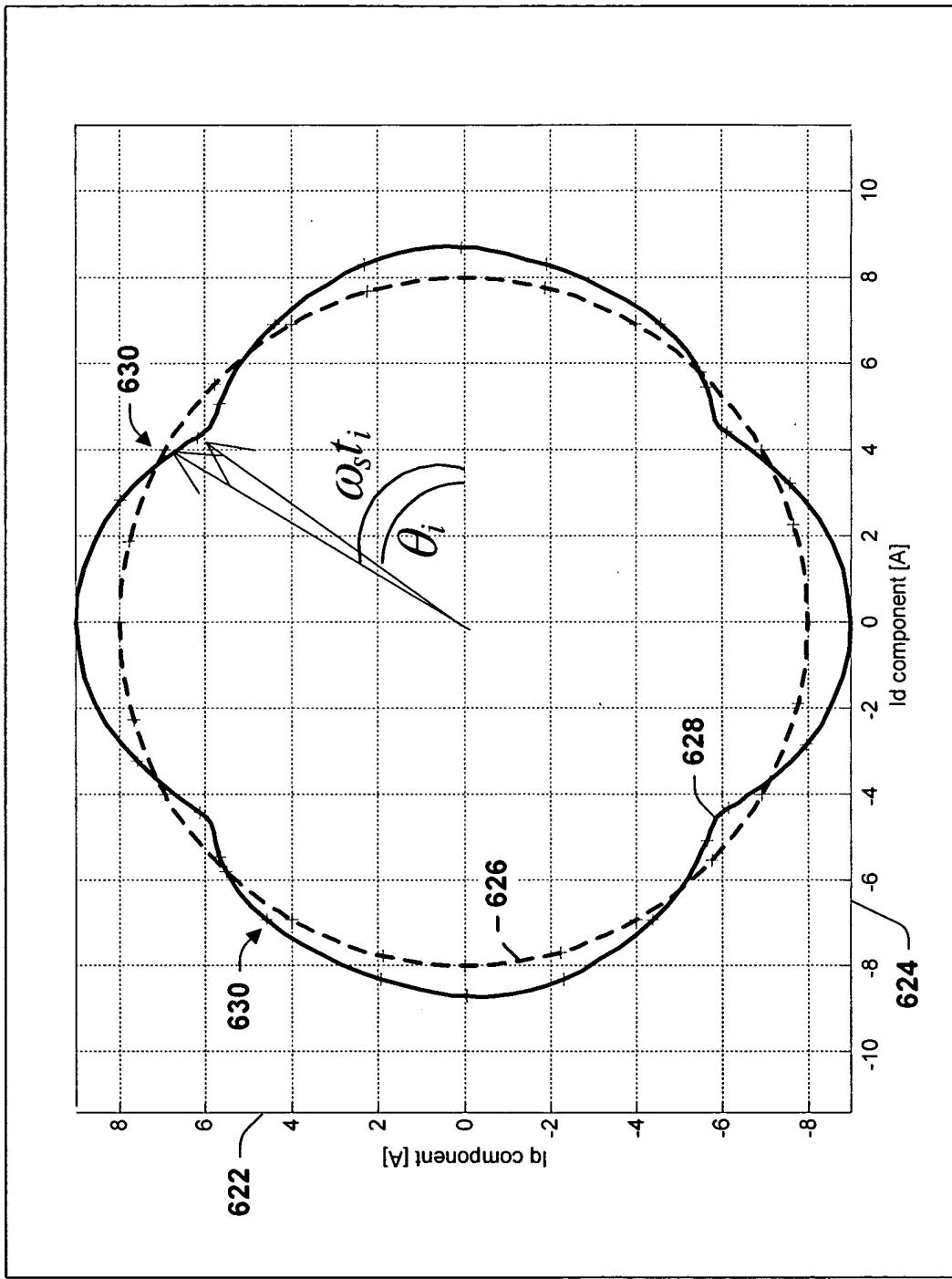


FIG. 27



• T' 0.0 0.2 0.4 0.6 0.8 1.0 1.2 1.4 1.6 1.8 2.0

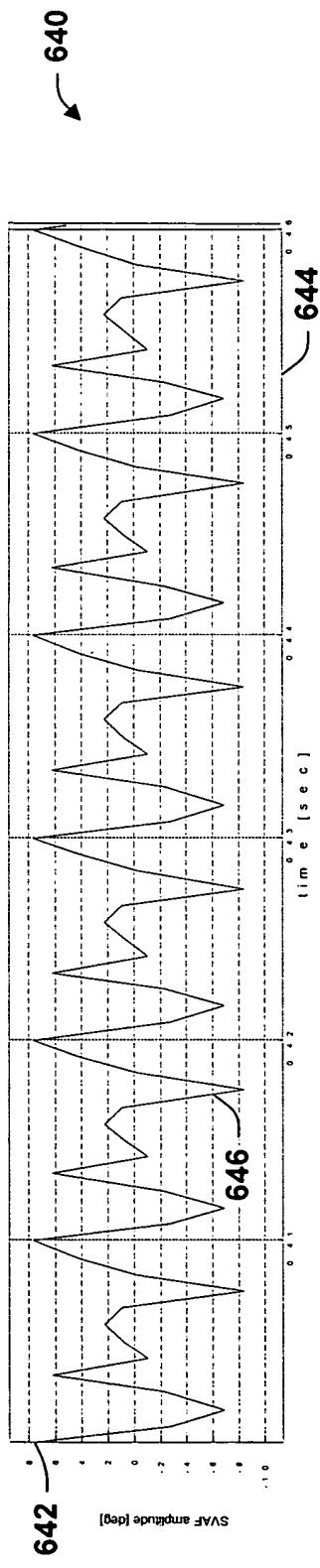


FIG. 28

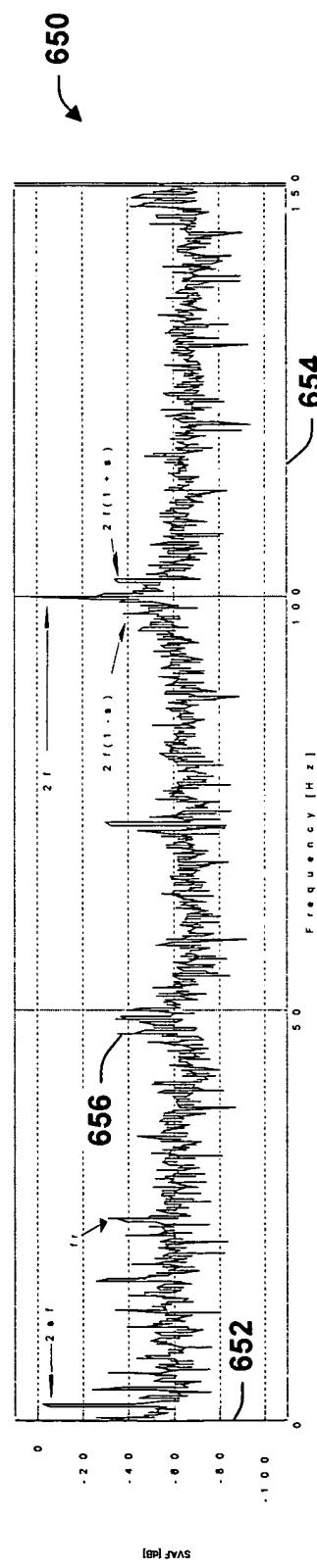


FIG. 29

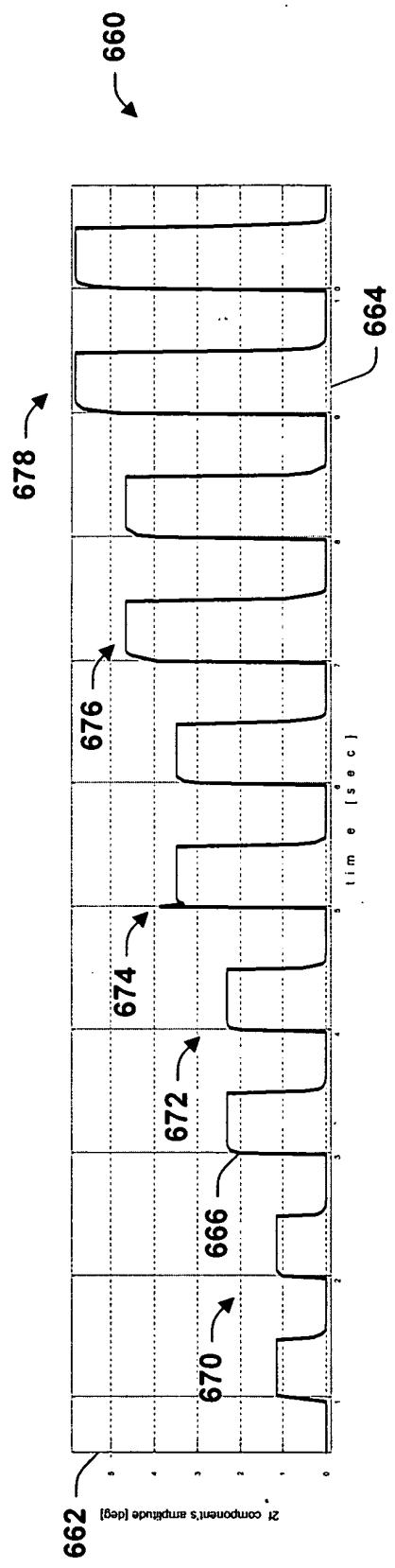
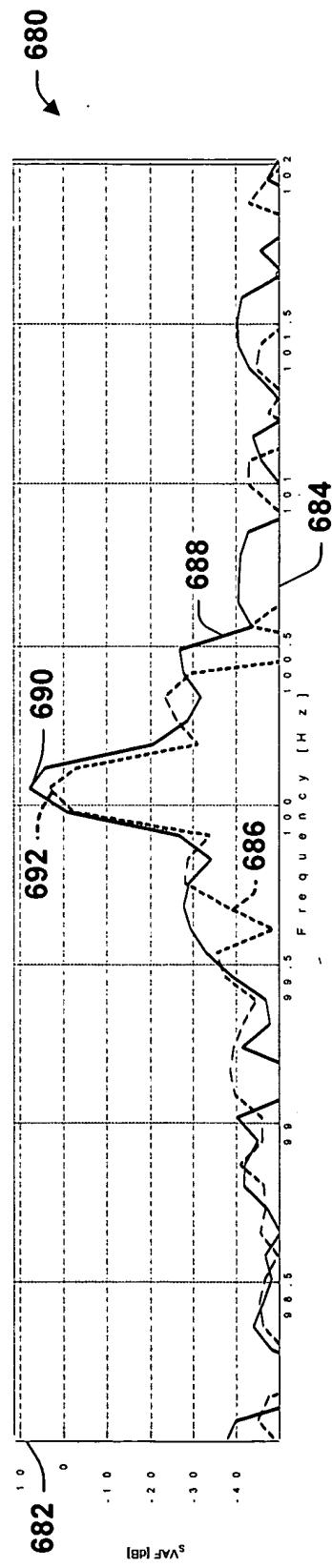
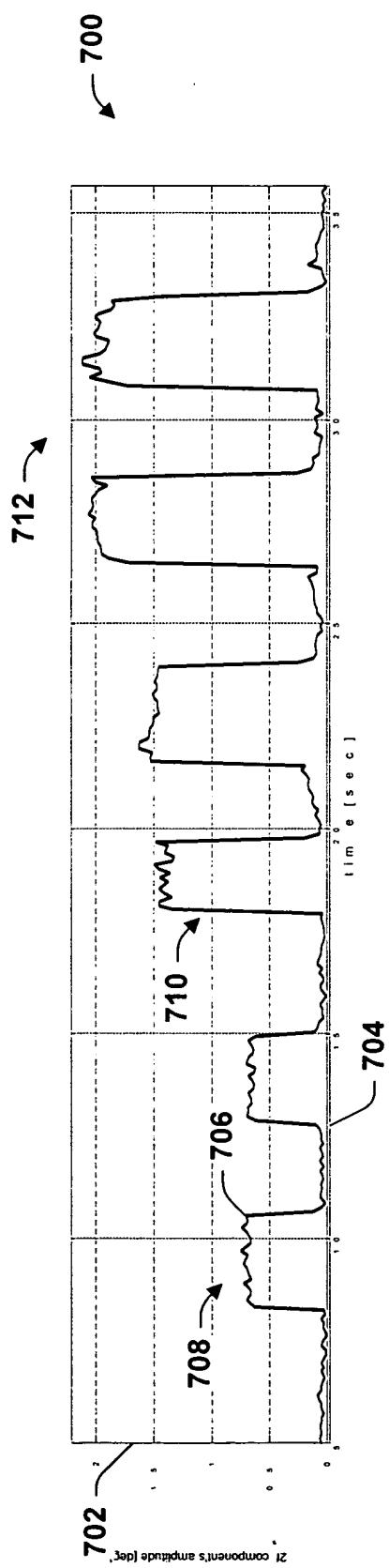


FIG. 30



SVAF [dB]

FIG. 32



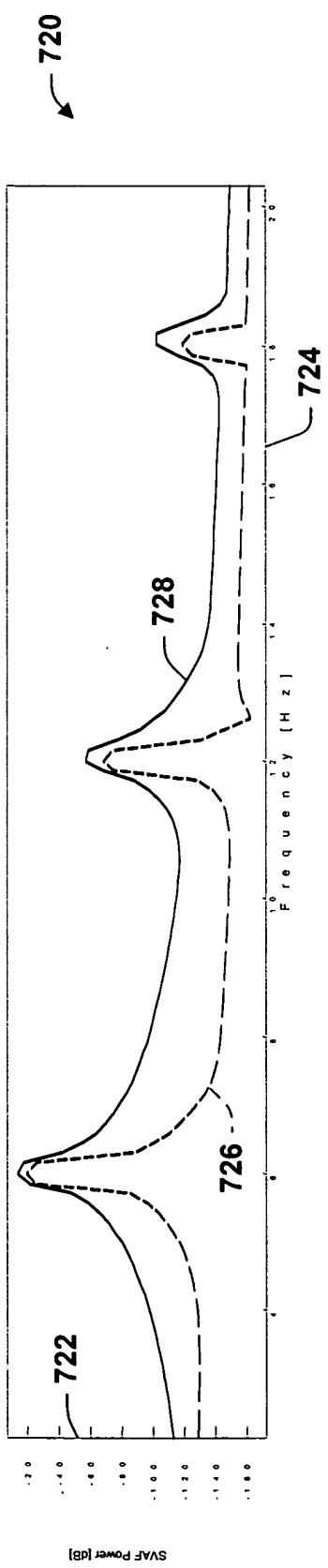


FIG. 33

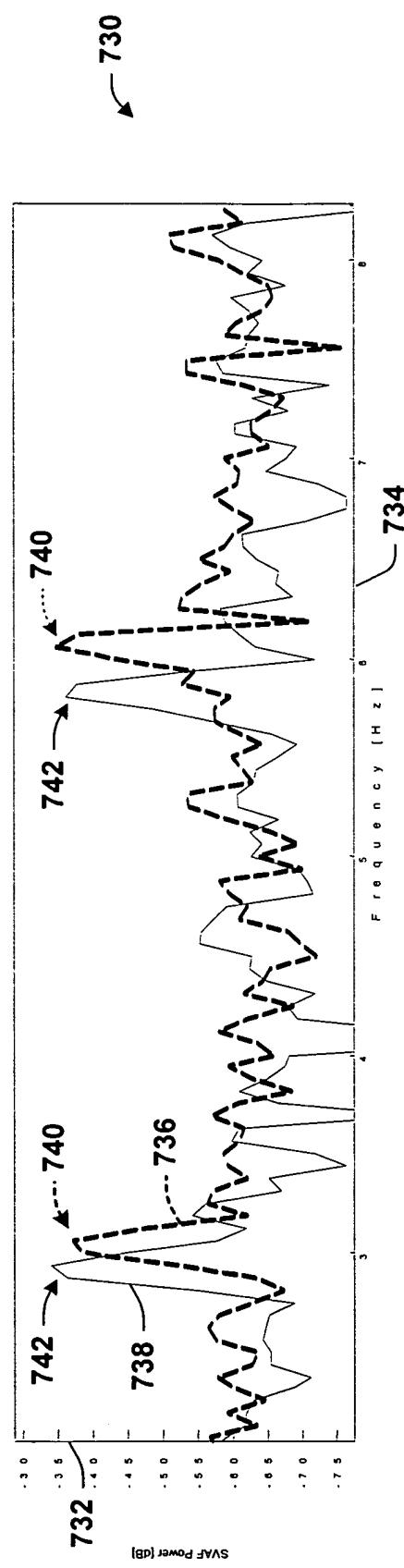


FIG. 34

750
752
758
756
754

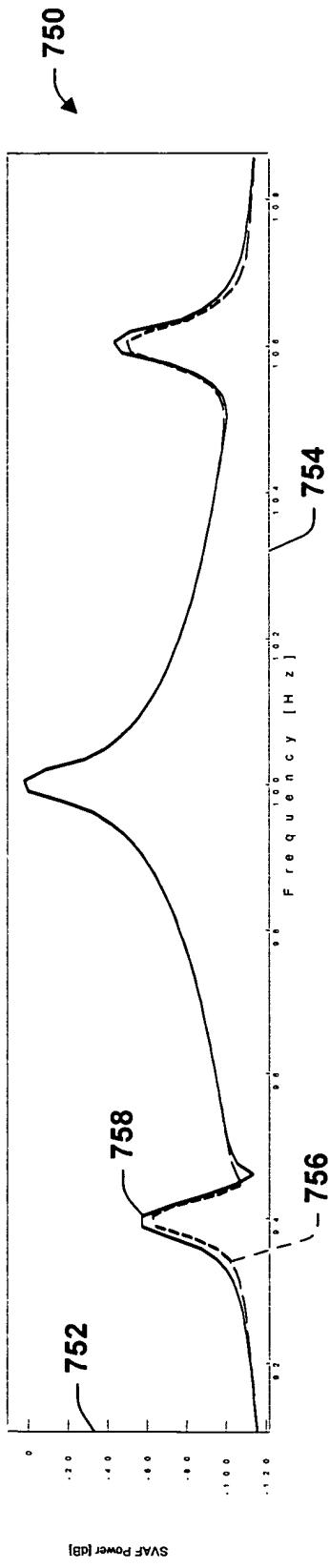


FIG. 35

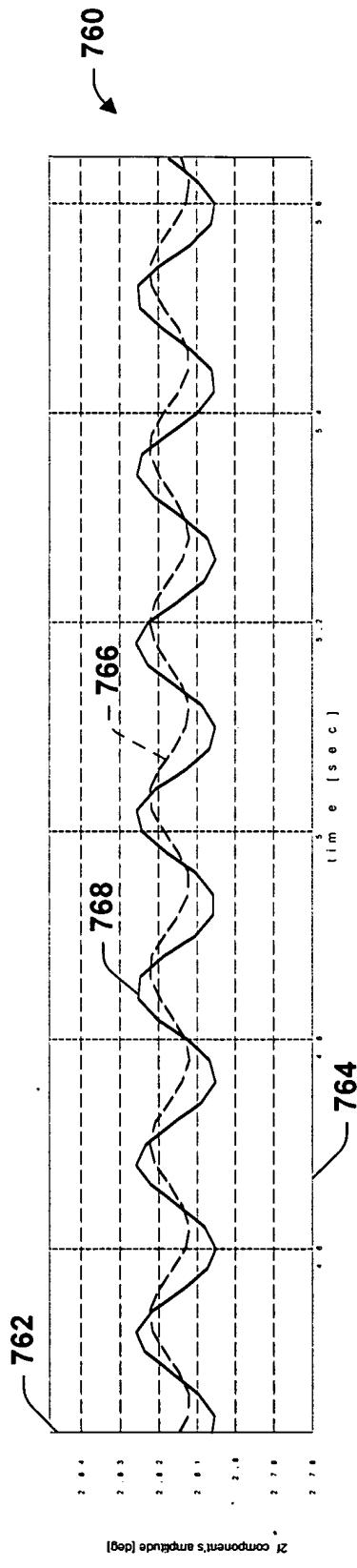


FIG. 36

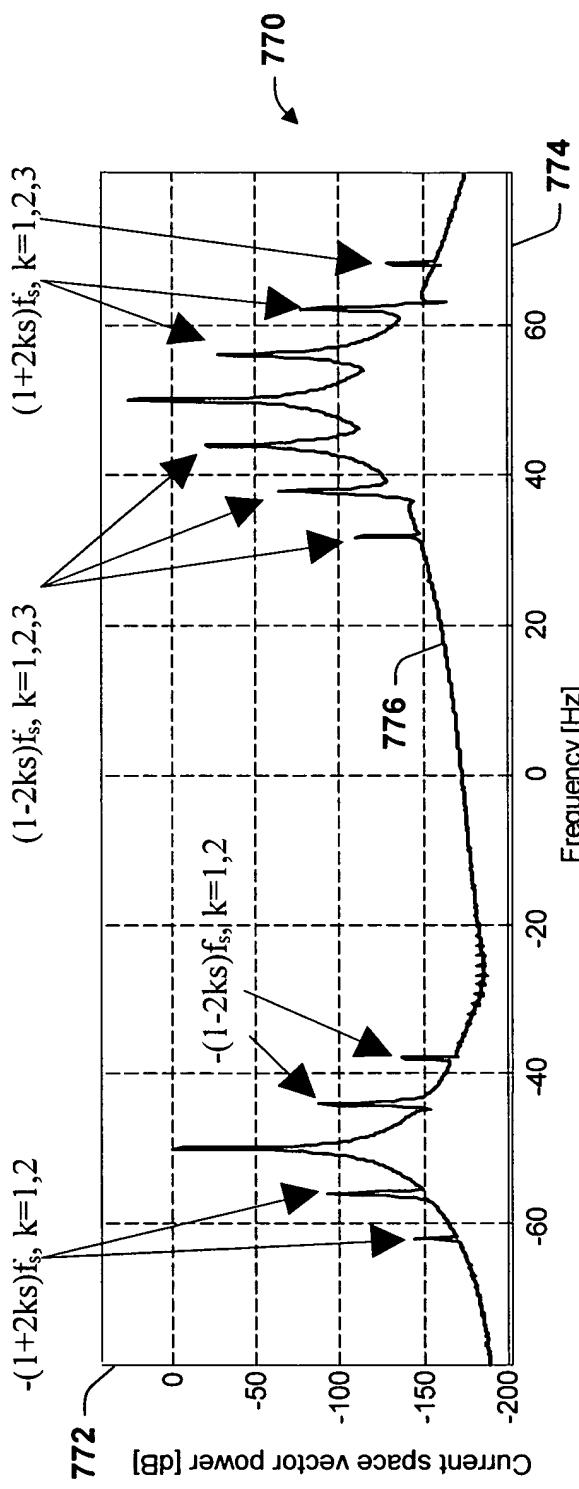


FIG. 37

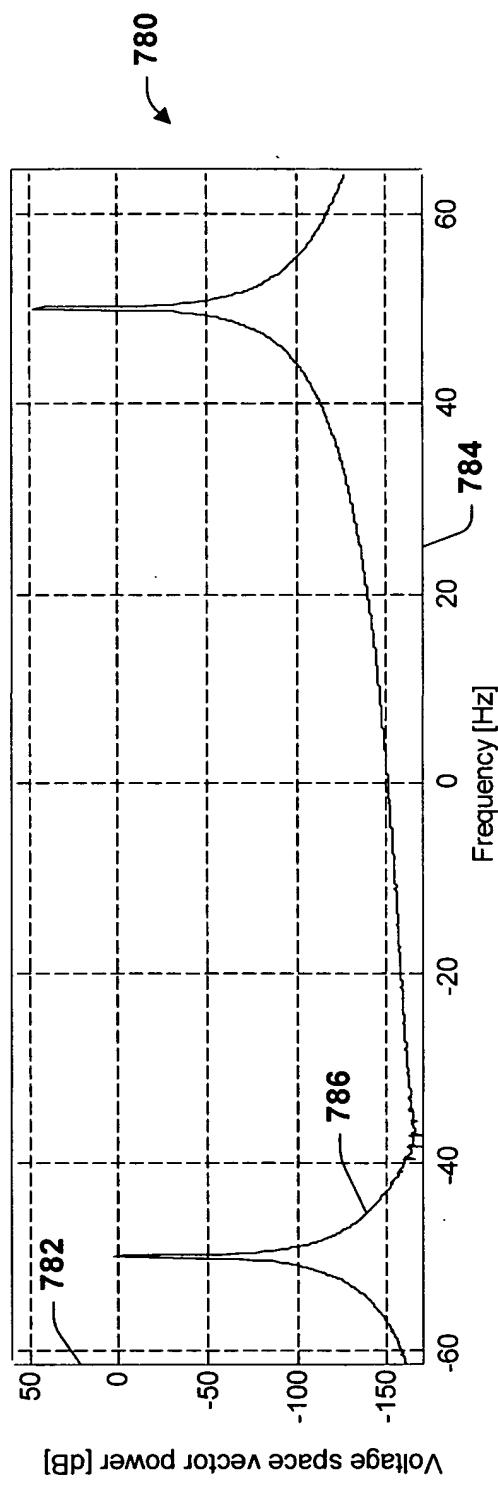


FIG. 38

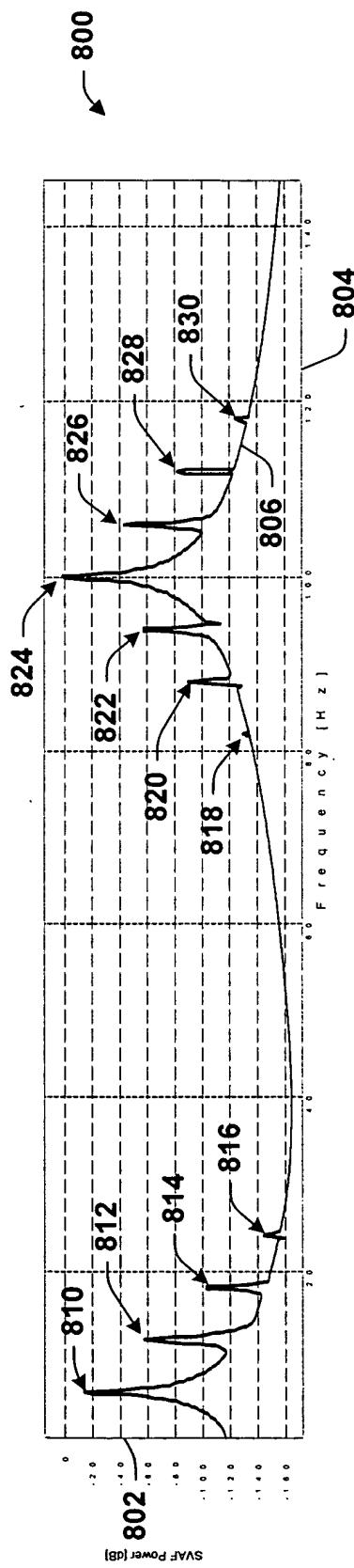


FIG. 39

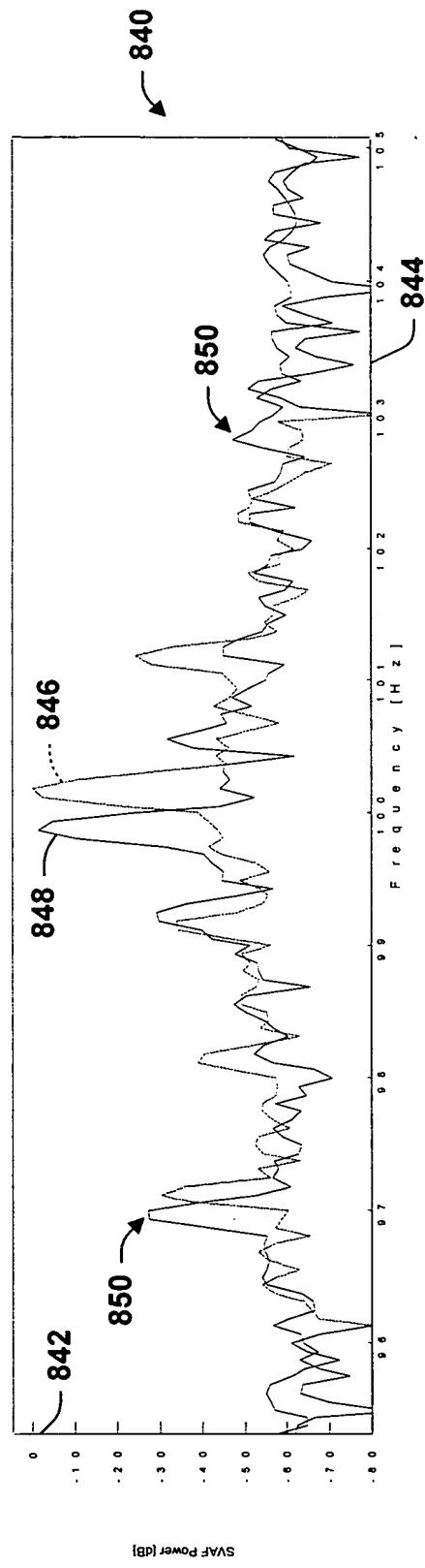


FIG. 40

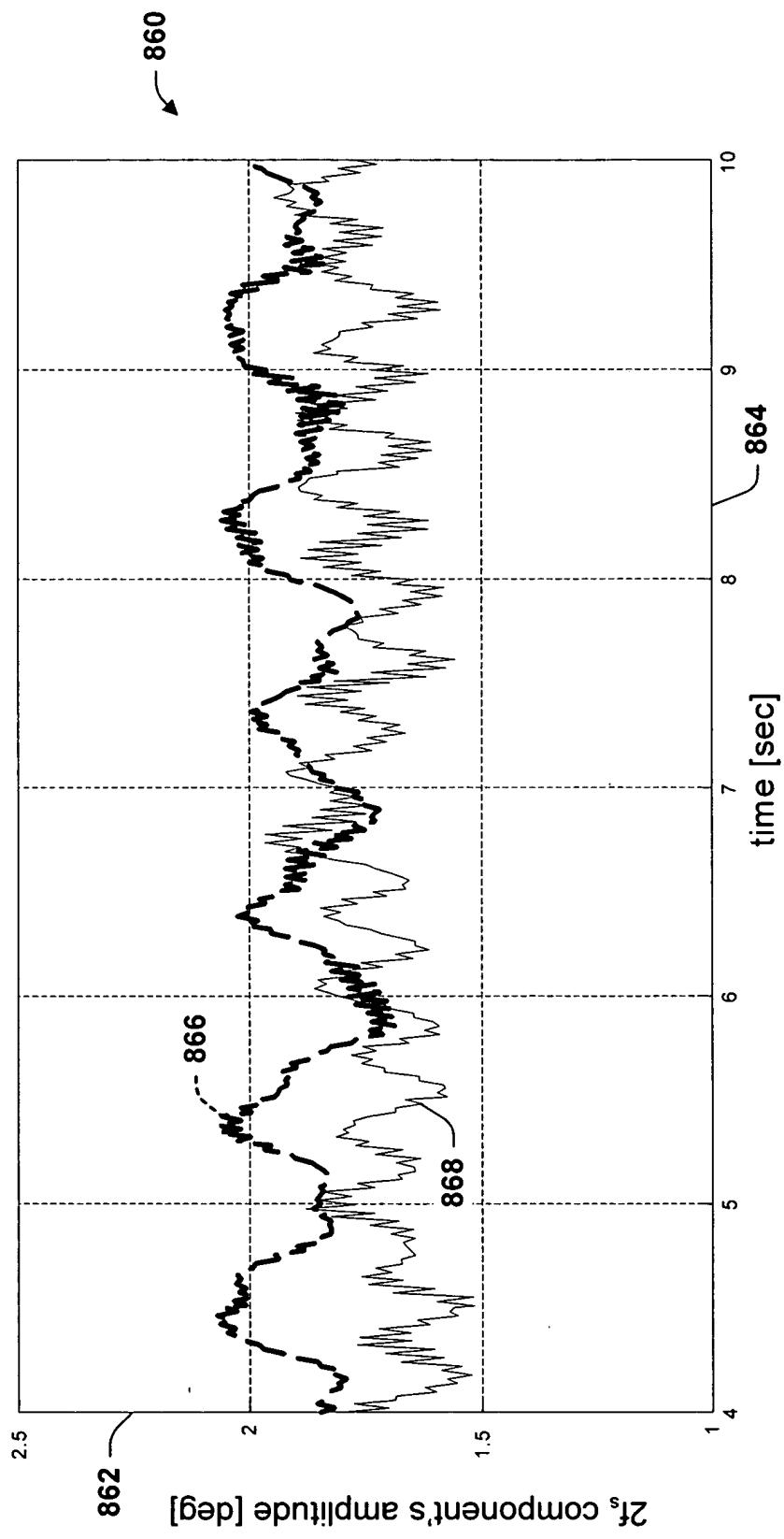


FIG. 41

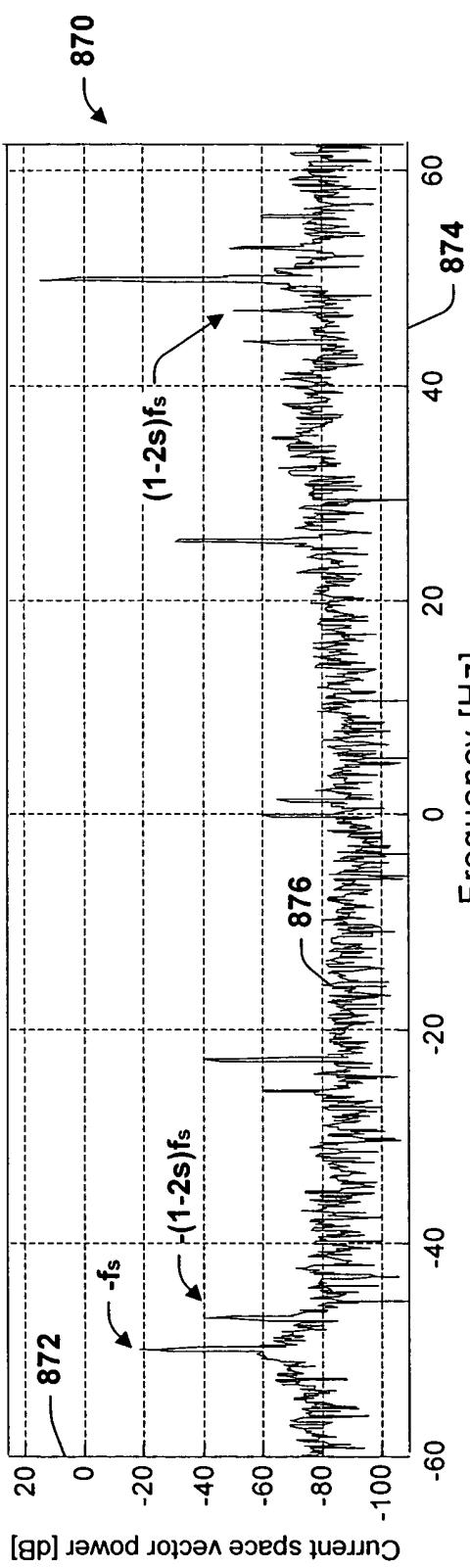


FIG. 42

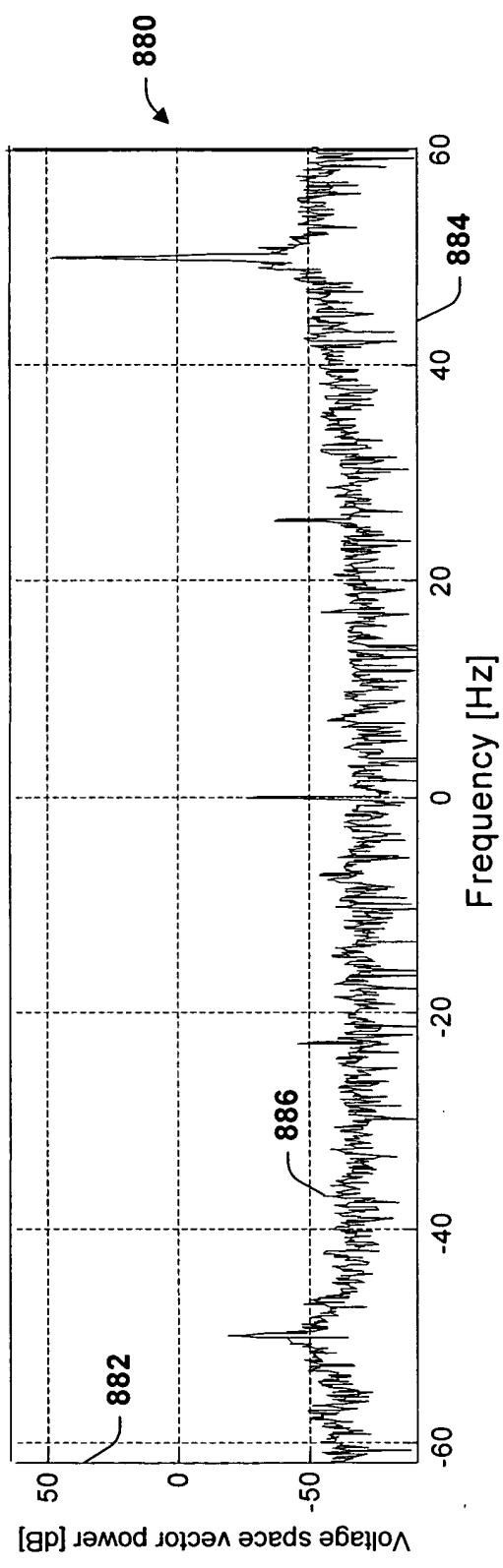


FIG. 43

FIG. 44

